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COMPUTERWORLD

Consortium may loosen OLE's grip on market

By Michael Vizard
SANTA CLARA, CALIF.

Looking to counter the influence of Microsoft Corp. and its Object Linking and Embedding interface, seven leading developers formed a consortium last week that will assume responsibility for developing their object-oriented operating system standards.

object oriented SYSTEMS

Called the Component Integration Laboratories, the so-called mutual benefit association's founders are IBM, Novell, Inc., Apple Computer, Inc., Taligent, Oracle Corp., WordPerfect Corp. and Xerox Corp.

The advantage for information systems managers is twofold. Instead of facing a dizzying array of object standards from a host of vendors, they will most likely have two to choose from: OLE and whatever the consortium comes up with. Two standards of equivalent weight could provide a counterbalance that would ensure that both standards maintain an open posture. The standards will be used for object-oriented development and the creation of compound documents.

The consortium's other primary mission is to "define the plugs" that will ensure that applications built using object technology are compatible with one another, said Jed Harris, the con-

Consortium, *page 8*

Novell taps Unix

NetWare link with UnixWare to address distributed gaps

By Elisabeth Horwitt
NEW YORK

Novell, Inc. is expected this week to outline a strategy for dominating the corporate distributed computing market by hitching together its two system software platforms, NetWare and UnixWare.

"The intent will not be to announce fundamental new products, [but to] describe the relationship of Unix System V Release 4, UnixWare and NetWare and [to answer] a whole slew of integration questions around that, plus interfaces," said Bob Davis, vice president of Novell's Unix Systems Group.

Novell will present a dual-platform strategy: UnixWare as the powerful, stable environment corporations need for vertical, mission-critical applications; and NetWare in its customary role of "horizontal" network server, optimized to support global messaging, local- and wide-area connectivity and directory services, said Novell Chief Financial Officer Jim Tolonen at a briefing last month [CW, Aug. 9].

Novell's Ray Noorda: *'It's our job to unify Unix'*

More dramatically, Novell is said to be on the verge of taking the high ground on the openness issue by turning control of the Unix brand name and interface over to standards body X/Open Co. (see story page 14).

Novell is seeking to differentiate UnixWare from other Unix System V Release 4 platforms, and from Microsoft Corp.'s Windows NT. It will do this by integrating UnixWare servers more closely with NetWare. In particular, Kanwal Rekhi, executive vice president of Unix Systems Group, cited the ongoing rollout of NetWare services such as global directory and authentication, Global Message Handling Service and the NetWare Management System.

This integration

Novell, *page 14*

Compaq, Novell to team on multiprocessing nets

By Michael Fitzgerald
HOUSTON

■ Officials from Compaq Computer Corp. and Novell, Inc. tomorrow will announce a partnership that will develop a version of NetWare that runs on multiple processors and supports clustering.

The resulting technology should give NetWare users a way to improve the performance of NetWare LANs by adding processors, something they can do with Unix and Microsoft Corp.'s Windows NT.

Ray Noorda, Novell's chairman, president and chief executive officer, hinted at tomorrow's agreement in his Compaq Innovate '93 keynote address last week. He said Compaq and Novell will cooperate in the future on developing multiprocessing NetWare and specialized servers and will more closely coordinate their sales efforts.

Separately, Gary Stimac, Compaq's senior vice president and general manager of the server division, confirmed the announcement. Drew Major, Novell's chief scientist, explained that the forthcoming version of NetWare is an asymmetric approach, but it will run on symmetric multiprocessing boxes or even in clustered configurations.

Major said Novell and Compaq will "focus primarily on asymmetric multiprocessing" development efforts because SMP configurations experience a significant drop-off in performance somewhere between the four- and eight-processor range. Adding processors incurs additional hardware costs for memory and bandwidth. "Client/server is inherently oriented

Compaq, *page 12*

DCE: Ready . . . set . . . go?

By Jean S. Bozman

Early users of the Open Software Foundation's Distributed Computing Environment are finding that the technology requires a commitment to a new method of application development. And many who waited for DCE tool kits to be delivered this year have yet to put DCE applications into production.

Even so, early users said they have high hopes for the nascent technology. They expect client/server systems to benefit from DCE, which ensures consistent file handling and security throughout an enterprise network.

Networks of distributed computers — including Unix-based boxes, PCs and mainframes — will be able to share files and the computational work load as DCE servers match user requests to available system resources.

Although production systems built on DCE are still relatively rare, users said many pilot projects are under way at large commercial and technical sites worldwide. Early adopters come from universities, science laboratories and government, but some large companies such as Citicorp and The Boeing Co. also plan to use DCE in next-generation client/server systems.

However, some early users have gotten bogged down in the complexity of DCE source code. In its purest form, DCE requires programmers to learn more than 400 system calls.

And for every user building with DCE code, there are several others waiting and testing for bugs.

"Conceptually, we all like it," said David Trueh, a senior technical specialist at BP Exploration Alaska, Inc. in Anchorage. His BP unit has more than 100 Unix systems but plans to wait to develop with DCE. "We have built our own tools and protocols, our own quirky way of

DCE, *page 15*

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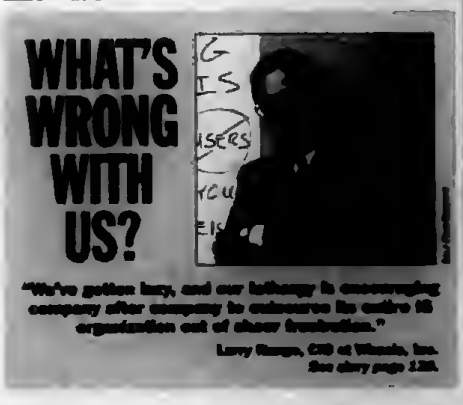

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QUOTE

"The Statue-of Liberty kind of manager, who says 'Bring me any computer to take care of,' will have a job in a year. Those who [think] the only 'real' computers are big iron will not." (page 28)

H. William R. Townsend, Air Products and Chemicals, Inc.

UNQUOTE

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Executive Briefing

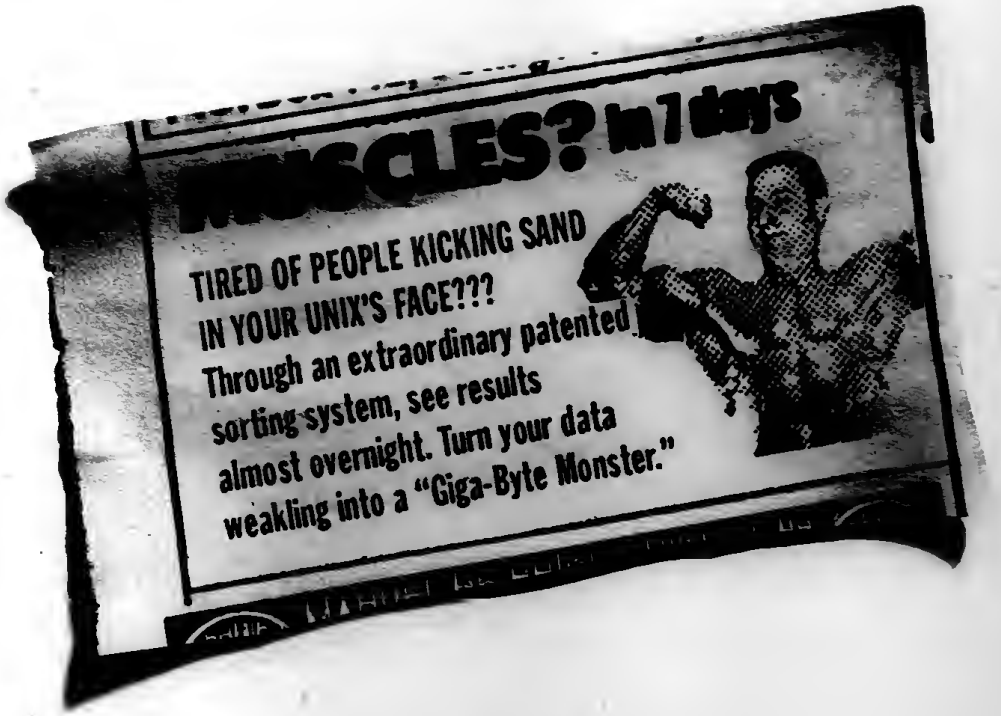
Does vendor unity really serve your best interests? When you're struggling to keep a variety of product and service providers moving in lockstep on your re-engineering project, it assuredly does. That's why Bob Habig, IS chief at Pepsi-Cola North America, wouldn't sign up any vendor for his current wide-ranging re-engineering effort unless it would agree to his rule: "We all wear Pepsi uniforms or we don't do business together." *Page 119*

On the other hand, when vendors agree to agree about certain aspects of technology, the outcome isn't necessarily all that advantageous to the customer. In his column this week, John Gantz argues that consortia-backed APIs, like standards, usually come with so many options that conformity means little. And, he says, they're also usually formulated with scant user input. *Page 41*. Unix users might agree. While applauding the recent formation of a coalition to develop common APIs, many are saying that what's really needed is agreement and joint action on critical items such as heavy-duty systems management and security products. *Page 14*

On the whole, no-holds-barred, no-alliance competition often seems to serve the customer best. And there's still a lot of that going on:

Lotus has beefed up its SmartSuite in hopes of beating **Microsoft**'s Office. *Page 44*. **Cyrix** is jumping into competition with **Intel** with the release of three 486DX-class processors, a development that could cut prices. *Page 46*. **Novell** is promising a strategy for uniting UnixWare and NetWare, a development that many see as a direct challenge to **Microsoft**'s Windows NT. *Page 1*

While all of this action, reaction and speculation swirls, some companies are pushing ahead with today's products. **Flora Plenty**, a retail flower chain, turned a struggling global order fulfillment service, **Bos-Flowers**, into an industry leader with customized telemarketing software and is about to launch a $250,000 WAN project to improve information flow. *Page 83*. **DynCorp**, a highly diversified worldwide professional and technical services firm, jumped off mainframes and into client/server with both feet back in 1990. Now it plans to connect its 11 LANs via a frame-relay WAN from **Sprint**. *Page 84*. And Houston-based **Conoco** has created a virtual bulletin board to link employees at five global sites using **Ingres**' Replicator. *Page 116*



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IBM leans toward recentralization

By Johanna Ambrosio
ARMONK, N.Y.

IBM's move last week to recentralize some key management functions drew cautiously optimistic reviews from customers and analysts, who said it indicates a significant change of direction for the company.

Under the new structure initiated by Chairman Louis V. Gerstner, a committee of 12 senior executives will be charged with overseeing the product plans and cross-business integration activities of IBM's divisions, as well as leveraging manufacturing and other economies of scale companywide.

The individual lines of business will retain responsibility for their financial success or failure.

These changes contrast with the "cut-'em-loose" philosophy of former Chairman John Akers, who encouraged lines of business to be almost fully independent from one another and from corporate management (see chart).

The main goals this time, an IBM spokesman said, are to shorten products' time to market and to improve communications among the divisions to ensure that IBM products work together and are not repetitive.

Key to the success or failure of the new structure, however, will be how much the committee hastens IBM's response to customers' needs. "To the extent they can help reduce expense and eliminate redundancy, that's great. But if they add a level of bureaucracy and complexity that was not there before, that would certainly cost IBM at this stage," said Philip Fasano, an information technology director at Bankers Trust Co. in New York.

Sam Albert, an independent consultant in Scarsdale, N.Y., added, "Gerstner has come to the conclusion that what the customer needs is a total solution and not piece-parts. This committee is a check-and-balance mechanism . . . with a heavier emphasis on the balance than the check."

John Jones, an analyst at Salomon Brothers, Inc. in San Francisco, said he sees the move as an attempt to leverage IBM's strengths as a broad-based supplier. "It is a challenging task, but given where they were three years ago, they know what they don't want."

Not all see the new structure as a plus. "They say the committee will not make operational decisions, but it doesn't look that way. These are the same people who got IBM to where it is today," said Bob Puffer, an analyst at Gartner Group, Inc. in Stamford, Conn.

Divided opinions

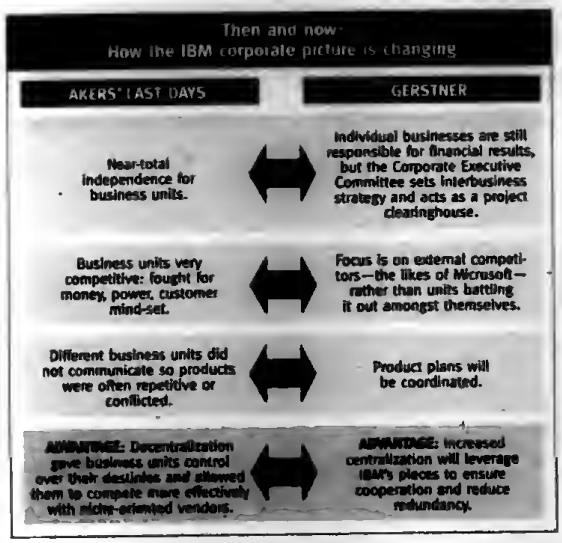
Customers contacted were split on what effect the reorganization will have on them. "We've learned to see how it works out before we come to judgment," said Colin Crook, senior technology officer at Citibank in New York.

Denny Knell, manager of information technologies at Delta Air Lines in Atlanta, said, "At this point, it doesn't sound like it will directly affect me."

Tom Loane, vice president of data processing at Alamo Rent A Car, Inc. in Fort Lauderdale, Fla., said the new organization is "one of the best decisions" Gerstner has made. "IBM can be successful if it keeps its act together." On the other hand, he said, "any committee can be a dangerous animal."

Deck shuffling

IBM's Corporate Executive Committee is staffed by Chairman Louis V. Gerstner and 11 others, including chief technology strategist Bernard Puckett; Vice Chairman Paul Rizzo; marketing gurus Ned Lautenbach and Bob LaBant; and product line heads James Cannavino, Ellen Hancock and John Thompson. IBM also announced a worldwide advisory council and an executive reshuffling. Some divisions were also renamed: Programming Systems is now the Software Solutions Division, and Enterprise Systems is now the Large Scale Processors Division.



Client/server nod

The overall theme of last week's IBM reorganization was weighted toward client/server, as four people who had headed individual product units were named group executives overseeing more than one line.

The primary responsibility of these four, however, will be to look to the good of the whole company, not just their own units. Their compensation packages have been altered to reflect that change.

Clients are handled by James Cannavino, who oversees all the PC and workstation businesses; IBM's traditional mainframe and minicomputer servers are the purview of John Thompson; and the networking and software "glue" are the domains of Ellen Hancock, formerly in charge of networking systems. The fourth new group executive is Pat Toole, who had headed corporate operations and now adds semiconductors, printers and storage systems to his roster.

Dave Thomas is now in charge of the AS/400 group, Thompson's old stomping ground. Hancock and Bob LaBant, former head of the U.S. and Canadian marketing groups and also a group executive, will name replacements for their daily duties.

Thompson's elevation came at the expense of Nick Donofrio, head of the company's mainframe unit. Although he retains his title, Donofrio reportedly lost his bid at the group executive slot because his group did not listen to customers fast enough to retool the mainframe in time to stop the revenue slide. "If you had a business whose revenues went from $13 billion in 1990 to $8.5 billion in 1993, would you expect to make it to the top cut?" asked John Jones, an analyst at Salomon Brothers.

—*Johanna Ambrosio*

Big Blue fleshes out SystemView plans

By Elisabeth Horwitt
ARMONK, N.Y.

IBM last week finally put some mainframe-based meat onto the skeletal body of its SystemView network management architecture. In the process, it hopes to bury a growing industry perception that it intends to replace mainframe NetView with the distributed, AIX-based, SNMP-compliant NetView/6000 platform.

This latest raft of announcements clarifies the roles of IBM's three-pronged enterprise network management strategy: OS/2-based LAN NetView and the AIX-based NetView/6000 manage distributed LAN installations via Simple Network Management Protocol (SNMP), while NetView/390 acts as focal point, data warehouse, correlator and central administrator across the various network management domains.

Finally satisfactory

IBM's blueprint found favor with customers. "This [plan] says, 'We finally have our act together, and we now understand that network management systems can either be workstation-based, distributed or centralized,' " said Trav Waltrip, director of telecommunications at The Travelers Corp.

IBM also continued to groom NetView/6000 as an enterprise manager. Last week the AIX-based system gained the ability to monitor SNA networks through a link to NetView/MVS. However, IBM, users and one analyst all agreed that NetView/MVS is not likely to be replaced in a hurry.

"You have to keep in mind that there are between 14,000 and 20,000 licenses of mainframe NetView" managing millions of nodes, said Jill Huntington-Lee, principal at Brandywine Network Associates in Cinnaminson, N.J. And while IBM is continuing to scale up NetView/6000 to handle thousands of nodes, "they'll tell you right away that it has nowhere near the ability to handle the 20,000- or 100,000-node networks mainframe NetView can."

"We run all of our mainframes in darkened data centers, so we need host NetView," Waltrip said. The insurer is looking at deploying NetView/6000 and LAN NetView to manage LANs and to forward statistics to NetView/MVS, where they can be stored cheaply.

IBM is also providing tighter integration between remote systems and NetView/MVS services.

The host system's Resource Object Data Manager will provide a common repository for distributed management systems to store and exchange management statistics, IBM said. The NetView Graphics Monitor Facility will provide a common view across different management domains. And NetView Automated Operations provides a vehicle for initiating responses to network events.

Highlights

- **NetView 2.4** features management of IBM Advanced Peer-to-Peer Networks and cuts installation from days to hours.
- **NetView MultiSystem Manager MVS/ESA:** management hooks to Novell, Inc. NetWare and LAN Network Manager; NetView/6000 to come.
- **NetView/MVS** management of AS/400s.
- **AIX SNA Manager/6000:** NetView/6000 can monitor SNA via NetView/MVS.

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Charles Babcock

A new class of computing

As the appetite for proprietary mainframes wanes, a new source of concentrated processing power is springing up — the component server. These servers, which incorporate an increasing number of mainframe concepts in their design, aren't cheap. But their prices are low relative to mainframes — typically $30,000 to $500,000 — because they are built from off-the-shelf, standardized parts.

Two pioneers in this area are Tricord Systems in Plymouth, Minn., and NetFrame Systems in Milpitas, Calif. Both firms were founded by engineers coming out of supercomputer and mainframe computer design.

Tricord, for example, uses auxiliary 386 processors on a storage subsystem. Mimicking a mainframe design concept, the Intelligent I/O Processor off-loads 90% of the disk I/O processing from the CPU. Two I/O subsystems may be added to a server, offering the option of disk striping with RAID-0 on one subsystem and disk mirroring to a backup set of drives (RAID-1) with the other.

High availability or fault tolerance was typically among the most expensive features when supplied by Tandem or IBM. Tricord and NetFrame, by employing mass-produced hard drives, have added a high-availability feature to their servers without sending prices into no-man's-land. In the event of the failure of a low-cost drive, Tricord's Intelligent I/O Processor automatically switches to the mirrored disk, forestalling a system crash.

But there's more to the direction these servers are taking than just lowering prices. Due to the power of the components from which they are built, Tricord and NetFrame are producing systems that can be easily adapted to today's PC-intensive environments.

With their Intel-based processors, for example, these servers run multiple operating systems, including Novell's NetWare, Banyan's Vines, IBM's OS/2 and Unix. NetFrame is also committed to supporting Microsoft's Windows NT.

NetFrame has designed an intelligent multiprotocol message handling layer between the CPU and storage system. This software layer intercepts calls from the operating system to device drivers, translates them into the proper message format, depending on the devices for which they are intended, and passes the message along to the disk controller.

This layer, dubbed Concerto, "decouples the physical affinity between a device and the operating system. The affinity is a logical rather than a physical connection," said Carl Amdahl, a veteran of the former Magnuson Systems Corp. and Trilogy Ltd.

The addition of Concerto means that many of the differences in 32-bit operating systems are neutralized by the server. A user can run two or more operating systems concurrently on the server, and the subsystem can handle the varying I/O traffic.

In a similar fashion, NetFrame has provided a centralized system for managing multiple NetFrame servers. A manager at a remote location can call up a window from the graphical user interface on each server, drag and drop icons of available peripherals, and in that manner reconfigure it to meet current needs.

In this respect, the NetFrame server has crossed over from the world of PC component server into a new realm, which can't be described as a wanna-be imitator of the mainframe. Rather, it is moving toward a new class of computing, far above an entry-level PC server and adeptly serving the PC users surrounding it.

These firms are giving PC suppliers ideas. Both Compaq and Dell offer servers as an adjunct to their high-volume PC business, and these servers offer parity, error checking, etc.

As Tricord and NetFrame continue to innovate in the field of component servers, the PC firms are likely to follow suit. The result will be a growing body of servers with more and more mainframe characteristics but submainframe prices.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

Desktop operating systems

Microsoft's Chicago to provide easier Windows navigation

By Michael Vizard
SANTA CLARA, CALIF

The forthcoming release of Microsoft Corp.'s next-generation 32-bit, preemptive multitasking implementation of Windows, code-named Chicago, will run comfortably on 80386-based PCs with 4M bytes of memory, according to Doug Henrich, Microsoft group manager for developer relations.

Chicago, which was designed to run on Intel Corp. platforms only, will run a "large subset" of the applications created using the full 32-bit Windows application programming interface, Henrich said at last week's Windows Solution conference.

Microsoft's Steve Ballmer: *Chicago will be an easy adjustment.*

Applications created with the full Win32 kit run on Microsoft's Windows NT operating system, which requires 16M bytes to run effectively. A more limited subset implementation of that kit, called Win32s, allows applications to run on both 32-bit and 16-bit implementations of Windows.

Henrich described the Chicago project as the successor to both Windows 3.1 and Windows for Workgroups. He said it will include built-in networking and a complete redesign of the Windows interface using a document-centric metaphor that will make it easier to navigate through Windows. It will support the Plug and Play initiative [CW, Sept. 13], wireless communications and synchronized updates of files.

Same dog, new tricks

A key component of the redesigned interface will be the merging of the File Manager and Program Manager functions in Windows. "We want everything in Windows to look and interact similarly, as opposed to requiring people to essentially learn different applications for each component of Windows," Henrich said.

Chicago has recently gone into limited beta testing but is not expected to be delivered until 1995. The company may be further along in its delivery schedule, however. Steve Ballmer, vice president of Microsoft's sales and support group, said he expects the product to be delivered by mid-1994.

The next beta release is set for late October or November, Ballmer said, adding that there will be other changes to the interface over and above these made in the first limited release.

"[Chicago] will still employ the desktop metaphor, but when users take a look at it they are probably going to say, 'Hmm, this is a little different look,'" Ballmer said. "But I think it will be an easy adjustment."

Henrich advised developers last week to pay attention to the guidelines Microsoft issues as Windows evolves because some elements may disappear in the next release. "We issue guidelines, but we haven't been [user interface] police for application developers," he said.

In addition to its Chicago project, Henrich said Microsoft will showcase an initial implementation of its Cairo object-oriented operating system this December at its Professional Developers Conference.

Cairo features

Henrich said Cairo, a server operating system that is due in late 1995, will provide transparent access to files and a seamless view of all resources on a network. The completely object-oriented system will include the Object Linking and Embedding interface, the base plumbing in NT, a distributed file system and the ability to run applications on idle processors strewn across a network.

Microsoft's future for client/server operating systems is clearly the Cairo/Chicago combination. Despite Windows 3.1's lavish commercial success on the desktop, the company will not drag its feet in replacing 3.1 with Chicago in client/server environments.

"Chicago will not be held a second longer than it needs to be. When its ready to go, it's gone," Ballmer said.

Ed Scannell contributed to this story.

Windows 4.0: Crowd pleaser?

Microsoft will make a character-based version of DOS 7.0 available, but company officials said Chicago, or Windows 4.0, which combines DOS and Windows functions, will prove much more popular.

Chicago — a 32-bit, multitasking, multithreaded version of Windows that will not require DOS to run — is in beta testing. It is not expected to ship until mid-1994, according to Steve Ballmer, vice president of Microsoft's sales and support group.

"There will be a DOS 7.0 that can be surgically removed [from Chicago] and sold separately for those who want to only run character-based applications," Ballmer said. "I don't think it will be as popular."

Many users and analysts said a character-based DOS 7.0 will be much more popular among users than Ballmer is willing to admit. They said Microsoft may be pushing users too hard and too soon toward Windows.

Sales of character-based DOS 6.0, released last April, have already exceeded 4 million copies, making it one of the company's best-selling products despite mixed reviews.

"There is a lot of industry focus on Windows because that is where the action is. But there is a sizable-based business with DOS. I have to believe that [DOS] is still a very important business to Microsoft," said Ed Iacobucci, chairman of Citrix Systems, Inc. in Coral Springs, Fla.

— Ed Scannell

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News Shorts

Windows SNMP standard progresses

NetManage, Inc. and Microsoft Corp. said they have developed a standard application programming interface (API) for developing Simple Network Management Protocol (SNMP) applications in the Windows environment. The standard is said to be the first API for developing applications across multivendor SNMP network management systems as well as the first to incorporate SNMP Version 2. The APt has been formally adopted by the Windows SNMP Task Force.

Packard retires as HP chairman

David Packard last week retired as chairman of the board of **Hewlett-Packard Co.**, the $16.4 billion company he co-founded in 1939 with William R. Hewlett. Packard, 81, cited advanced age as the reason for his retirement. He will be succeeded by HP President and Chief Executive Officer Lewis Platt. Packard's retirement was part of a broader shuffle of the HP board. Three other directors also retired.

SIM to honor leading users

The Society for Information Management (SIM) will present its coveted Partners in Leadership Award to **JC Penney Co.** and **Nalco Chemical Co.** at SIM's annual conference in Washington, D.C., this week. Dallas-based JC Penney will be cited for a $200 million automated inventory replenishment system that improved inventory handling. Nalco, based in Naperville, Ill., will be honored for deploying notebook PCs and homegrown software in the field to boost sales and customer satisfaction (CW, Sept. 13).

Convex to market tape libraries

Hunting for new revenue sources outside its usual technical supercomputer domain, **Convex Computer Corp.** plans to start marketing file server systems for commercial customers to use in managing data stored in tape libraries. Convex has added low-end models based on minority investor **Hewlett-Packard's** workstations to go along with existing file servers built around its own C Series hardware. Prices for the systems, now called the DataSeries line, start at $150,000 for a workstation setup aimed at departments with 10 to 20 users. Convex said it wants to jump into commercial markets to help offset sales declines in its base technical-compute server business.

CRS operators to unite systems

Having announced plans to merge last March, computerized reservation system operators **Covia** and UK-based **Galileo** last week formed Galileo International. The new company will consolidate Galileo's Swindon, UK, data center with Covia's Denver facility at the end of this month. The resulting single-image system will serve nearly 30,400 automated travel agencies worldwide.

3Com unites internetwork products

3Com Corp. last week announced Transcend, a software architecture for managing the full gamut of 3Com hubs, bridges, routers and adapters. The product reportedly enables users to define and manage logical workgroups as a single network system, even when some network nodes are on separate hubs.

SHORT TAKES **NCR Corp.** and **Oracle Corp.** have announced NCR's LifeKeeper FRS Clusters, fault-resilient software designed to incorporate Oracle's Parallel Server software.... **MasterCard International, Inc.** and **Europay International SA** plan to develop a global transaction processing network to support all payment-services products between the companies.

News shorts, *page 16*

Vendors back Borland plan

Apple, MCI, WordPerfect to support groupware framework

By Michael Vizard
NEW YORK

Borland international, Inc. last week announced its groupware strategy to a chorus of support from third-party vendors and information systems organizations alike.

Among the heavyweights pledging varying degrees of support for Borland's Object Exchange (Obex) facility were Apple Computer, Inc., MCI Communications Corp., WordPerfect Corp. and Novell, Inc.

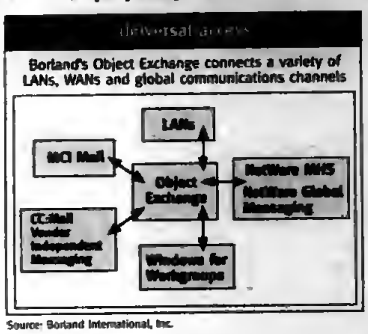
Obex is an object store facility that allows users to selectively share data between their applications without using a specific central server, database, electronic-mail or network protocol. Borland will incorporate Obex into all of its Windows office products.

In addition, Apple plans to use Obex to link its forthcoming PowerShare groupware effort to Windows applications. Also, under an agreement with MCI, support for MCI Mail has been preconfigured in the Workgroup edition of Borland's Quattro Pro spreadsheet.

Similarly, Novell plans to make its Message Handling Service (MHS) compatible with Obex, and WordPerfect will support Obex in its namesake word processor as well as its WordPerfect Office E-mail package.

To showcase the capabilities of Obex, Borland last week demonstrated a SQL query from a Paradox database to both an Oracle Corp. and Sybase, Inc. relational database management system. That data was then transferred into Quattro Pro, a Microsoft Corp. Excel spreadsheet and WordPerfect using a publish-and-subscribe approach. Publish and subscribe allows users to share data without using a central server.

"Borland has tightly linked the object technology with its SQL interface so that you don't feel like you are exiting Paradox to make a SQL query using a separate module," said Dan Robinson, president of Bright Light Consulting, Inc., an independent developer in San Francisco.



Source: Borland International, Inc.

Independent move

To help software developers add support for Obex to their applications, Borland has made available a Workgroup Enabling Kit based on Obex and plans to provide Obex libraries for major applications such as Excel.

The move means Borland will not be dependent on support from Microsoft or Lotus Development Corp. in its bid to push Obex as a standard.

Obex will also become a key component of Borland's suite initiative once WordPerfect delivers Obex in its applications. Borland is expected to deliver an updated version of Borland Office later this year (see story page 44).

General Motors Corp. plans to use Obex to roll up Quattro Pro worksheets and Paradox databases from offices located throughout the U.S., Europe and Mexico, according to Alton Dunks, a GM senior systems analyst.

Borland was careful not to position Obex as a direct competitor to Notes and in fact, the products are structured very differently.

Borland Chief Executive Officer Philippe Kahn characterized Notes as simply another transport service for Obex-compliant applications.

"Notes is a heavy-duty infrastructure system that has to be deployed and maintained. If you need that, we'll take advantage of that," Kahn said.

Dharien Rao, a systems analyst at Price Waterhouse in San Francisco, said his firm is looking forward to Borland's promised initiative to support Obex running over Notes. "Having Obex integrated with Notes will be truly great," Rao said.

However, industry analysts said Borland must move quickly if it hopes to make Obex, which has been under development for three years, a standard before rivals can respond.

"It will probably take them until the end of the year to get Obex fully in place. All I can say is they better hurry," said Esther Dyson, editor of the "Release 1.0" newsletter in New York.

Kahn said Borland will ship 1 million copies of Obex-compliant products within a year.

Consortium

CONTINUED FROM PAGE 1

sortium's acting executive manager.

As part of this effort, the consortium plans to deliver a developer's kit in the first quarter of 1994 for Windows, Macintosh and OS/2 systems that will meld into a cohesive development environment the following components: IBM's System Object Model; Apple's Bento object storage format and Open Scripting Architecture language; and the OpenDOC software architecture announced earlier this year by IBM, Novell, Apple, WordPerfect and Borland International, Inc.

OLE, meanwhile, is the cornerstone of Microsoft's plans for developing the Cairo object-oriented operating system.

"When you have a vendor that is as dominant as Microsoft is, it will be hard for [the consortium] to be successful. The market defines what the de facto standards are," said Jonathan Seybold, president of Seybold Seminars in Malibu, Calif.

> The Consortium will be incorporated as an independent entity that will provide a certification process for applications by the end of this year.

As evidence of the extent of Microsoft's strength in this arena, he said WordPerfect will deliver a mechanism for transferring data between OpenDOC and OLE as part of the standard.

To counter Microsoft, CIL will stress the multiplatform approach it will take using the technology in OpenDOC.

For example, Microsoft's OLE approach currently supports only the exchange of objects across a single Windows system, and a network-aware implementation of OLE is not expected until Microsoft delivers Cairo in 1995.

In contrast, OpenDOC makes use of IBM's implementation of the Common Object Request Broker Architecture standard, which is the basis of IBM's Distributed System Object Model.

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With its small size, low power requirements, high reliability, bundled software, and central administration, the HP Windows Client is the ultimate in low-cost desktop computing. In fact, the U.S. list price is only $895*!

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For more information on the HP Windows Client, contact your local HP sales office or HP authorized reseller, or call HP at 1-800-637-7740 (1-800-387-3867 in Canada). It could make a world of difference to your organization.

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Users wary of Oracle support, focus

By Kim S. Nash
SEDWOODSBOKS, CALIF

Oracle Corp. executives will get an earful next week when a crowd of about 8,000 Oracle users are expected to descend on Disney World in Orlando, Fla., for International Oracle User Week. Users last week said concerns range from technical support for development tools to philosophical questions about Oracle's product focus.

Oracle may be juggling too many balls, some observers said. Since signing a pact with US West in June to supply massively parallel databases for the telephone company's foray into interactive television, Oracle Chief Executive Officer Larry Ellison has been touting plans to team up with any and all media carriers.

While Oracle may have the technological prowess to pull it off, some users wondered what is in it for them.

"I'm sure they will make a lot of money off this stuff . . . but it better not be at my expense," said Michael Abbey, chairman of Affinity, an advisory group of major Oracle users. He suggested that Oracle hire workers dedicated to interactive TV ventures so as not to take away from existing technical support services or product quality.

The company has not done any significant hiring but recently rearranged resources to focus on multimedia database projects. Chairman Jim Abrahamson is charged with cutting deals with phone companies, while Terry Garnett, senior vice president of marketing, is now responsible for partnering with information providers such as movie companies and news services.

Other users said they were optimistic that any research and development Oracle may do for phone companies will trickle down to core products. Oracle "would be remiss if they didn't translate all that effort — especially in object technology — back to the business user's database engine," said Mark Farnham, database architect at Burlington Coat Factory Warehouse Corp.

In demand

Just to be sure Oracle does not take its eye off the ball, users last week cited several features that they want Oracle to enhance or add to various products:

- Security, tuning and administration features for very large databases of 20G bytes and up.
- Imaging capabilities in Oracle 7.
- Greater flexibility in accounting applications to handle exception situations, such as cutting multiple checks to a single supplier during one pay cycle.

A handful of users also noted the same concern: They want Oracle to state definitively whether it will support its new Cooperative Development Environment (CDE) tools against the Oracle 6 database. CDE products have been tested and certified against only Oracle 7.

"That's part of why we may have to speed up migration from 6 to 7," said Dave Heck, a unit manager at Nationwide Life Insurance. The Columbus, Ohio, insurer wants to use CDE tools for a half-dozen major development and reengineering projects planned for the next 18 months, Heck said.

Meeting tips

What to look to for at Oracle's user conference next week:

- Enhancements to database replication features.
- Demonstrations of interactive TV applications, such as full-motion video and CD-like sound, managed by a massively parallel version of the Oracle database.
- Announcement that key pieces of CDE tools are shipping.
- Blueprints for Oracle's groupware plan, based on improvements to Oracle Office electronic-mail package.

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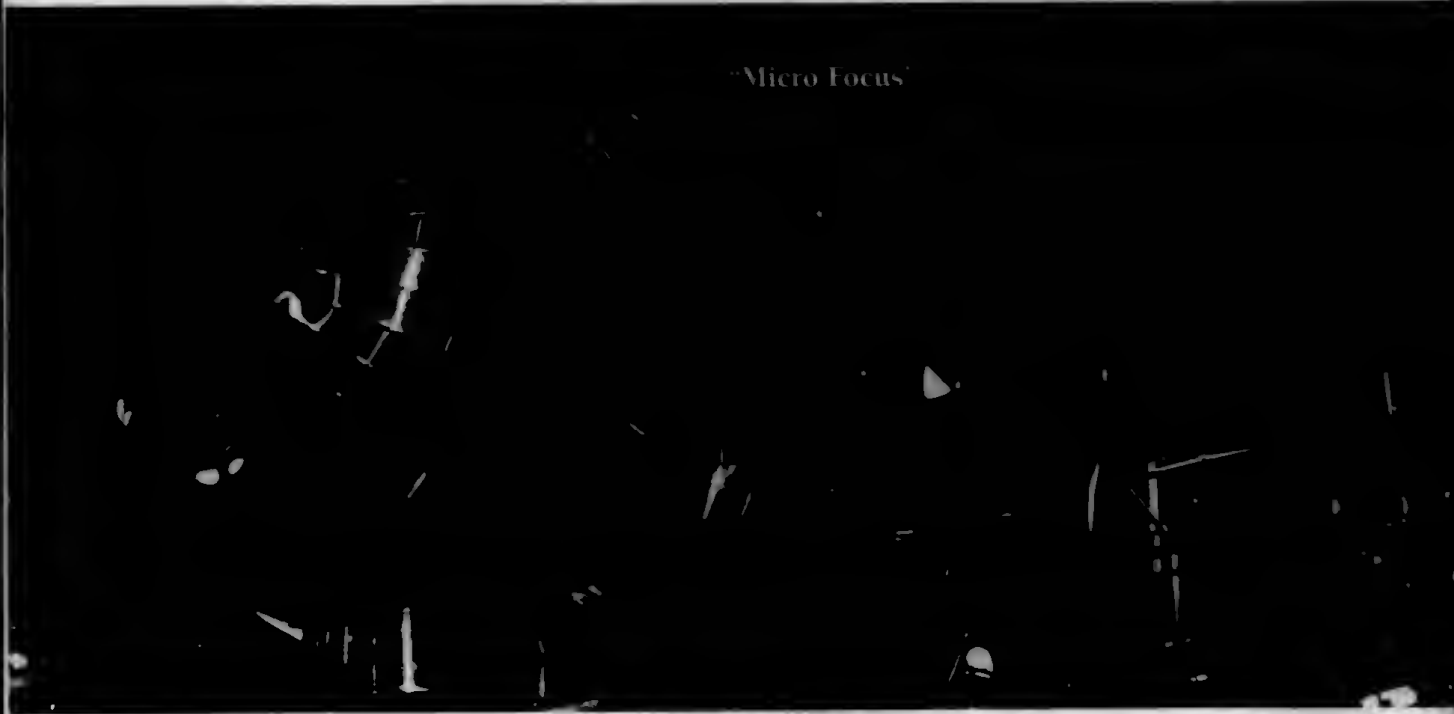

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IBM, Compaq duel over server strategy

By Michael Fitzgerald and Stephen P. Klett Jr.

Recent server announcements by the IBM PC Co. and Compaq Computer Corp. underscore the differences between the Top 2 PC server makers by highlighting the fact that IBM continues to lag in the client/server arena, which should be its birthright.

Compaq, which is No. 1 in the market, rolled out ProLiant, a family of high-end servers with large-system-like functionality. The PC Co., meanwhile, will today release new versions of its Server 85s and 95s designed to pull it ahead of the feature set in Compaq's low-end ProSignia and midlevel SystemPro/XL products.

Compaq CEO *Eckhard Pfeiffer stressed the open nature of the ProLiant line*

In a blow to the PC Co.'s strategy, the company's planned refresh of its 195 and 295 high-end servers, which it intended to deliver as a competitive counter against ProLiant [CW, July 19], will not appear until the first quarter of 1994. Brian Sanborn, product manager for the Server 85 and 95, blamed the missed target date on IBM's delay in readying MP NetWare, a software component that optimizes Novell, Inc.'s NetWare to run on the multiprocessor Server 195 and 295.

"MP NetWare was slated to be ready in July, but it's been pushed back to October, which has impacted our hardware development," Sanborn said.

An overly ambitious release schedule and bugs encountered during compatibility testing have contributed to the delay as well, said David Saxby, manager of server systems at the PC Co. in Boca Raton, Fla.

"It was a very aggressive schedule that assumed a lot of success along the way, and some problems in testing have taken time to correct," Saxby said. "We won't sacrifice the quality of a machine for the sake of meeting a schedule."

In contrast, Compaq's server efforts have sailed smoothly to market. With ProLiant, Compaq has thrown down the gauntlet in front of the PC Co., analysts said; the question is when and if the IBM PC Co. will be ready to rise to the challenge.

Eckhard Pfeiffer, Compaq's chief executive officer, said the ProLiant was an important part of Compaq's effort to surpass IBM in the PC market and stressed that these were open systems.

"We've been a flag carrier of open standards since we were founded," he said.

"Compaq has just introduced boxes that beat the Model 95 on price but are in the performance class of the 295," said Leslie Fiering, an analyst at Gartner Group, Inc. in Stamford, Conn.

She said a strong point in the Compaq announcement is the large-systemlike functionality it offers through a new version of the Insight Manager tool and SmartStart. This offers users a CD-ROM-based installation script that can cut in half the time it takes to install products such as NetWare.

Analysts said the PC Co. continues to retain a solid No. 2 spot in the server market because of its large systems presence, but some wondered if the market will slip away from it because of Compaq's far more aggressive approach.

The PC Co.'s "lack of aggressiveness could start to hurt them," said Jeffrey Henning, an analyst at BIS Strategic Decisions in Norwell, Mass.

Missed opportunity

While many have said IBM could dominate the client/server market because of its experience with support, systems integration and distributed computing, "they forfeited their birthright in the server market when the [Compaq] SystemPro came out and they didn't respond. And they have continued to miss opportunities," Henning said.

"I am impressed with Compaq's new technology and price points," said W. B. Soper, director of information systems at Chevron Canada Ltd. in Vancouver, British Columbia. Soper said he had intended to upgrade to the 295 follow-on but now expects to move to the less expensive Compaq machines.

However, analysts said the PC Co. could come back to pose a real threat to Compaq in the budding arena of client/server hardware. The PC Co. created a separate server brand only two months ago, and for the first time is free to go after IBM's bread-and-butter minicomputers and RISC servers.

Users responded positively to the products the PC Co. did announce, particularly the high-end Server 95 with the option of built-in redundant arrays of inexpensive disks.

The PC Co. said it will release a version of its server management tool, Maximum Availability and Support System/2, for the 85 and 95 lines in January.

Servers square off

	Compaq ProLiant 2000 Model: 5/66	IBM PS/2 Server 95 Array 566
Processor	Intel Pentium, 66 MHz	Intel Pentium, 66 MHz
Memory	32M to 512M bytes	16M to 256M bytes
Cache	265K bytes	256K bytes
Controller	Compaq Smart SCSI Array	Fast RAID-5, SCSI-2 streaming
Service	Three-year limited warranty, toll-free support and remote problem troubleshooting	Three-year warranty, toll-free phone support, four-hour response to selected cities at no additional charge

Compaq, Novell team up

CONTINUED FROM PAGE 1

toward multiprocessing, but users don't care if the processors are in one box or multiple machines," Major said.

Users said they were interested in multiprocessing-capable NetWare, though some were displeased that Novell will relegate SMP to second-class status.

"Everything [Major] said [about SMP's drawbacks] is true, but I would prefer he do an SMP version first because in a single box, if you want faster performance, you get it from SMP," said Louis Kahn, chief of computer operations at the Centers for Disease Control and Prevention's Division of Immunization in Atlanta.

More performance

Major pointed to the SMP efforts of companies such as Tandem Computers, Inc. and Sequent Computer Systems, Inc., saying that at a certain point all their extra processors are configured in a loosely coupled (asymmetric) configuration because that is the only way to get extra performance out of additional processors.

While Unix and Windows NT both support SMP, a scalable NetWare will allow users to theoretically gain performance in large-scale multiprocessing systems. However, Major said Novell will continue to push its UnixWare as an SMP offering and will build an SMP NetWare only if customers demand it.

Despite user frowns, analysts said the move by Novell and Compaq makes sense.

"There's a huge, critical mass of users that cannot truly benefit from their applications until they get to plug into incremental performance, such as that you would get from a scalable NetWare," said John Dunkle, president of WorkGroup Technologies, Inc. in Hampton, N.H.

Client/server

Users want less proprietary CC:Mail

By Lynda Radosevich

Lotus Development Corp.'s expected announcement this week of an X.400-based message server based on Notes will give CC:Mail customers a much-needed migration path to client/server computing. However, customers and observers said they really want to hear that Lotus will become less proprietary about the CC:Mail technology and will improve its delivery record.

The server, to be unveiled at Lotus' annual CC:Mail user conference in San Francisco, will support a new client/server version of CC:Mail, Notes, non-Lotus client software and multiple back-end transports, including Novell, Inc.'s Message Handling Service and X.400, a source said. It is meant to be a "universal" messaging transport along the lines of Hewlett-Packard Co.'s OpenMail, according to the source, however even with the new server, Notes and CC:Mail will continue to use different message stores and directories.

Currently, Notes and CC:Mail have separate methods of transporting messages and documents. "The problem with having two transports is that it requires separate groups to manage them," said Felice Curcelli, a CC:Mail product manager.

Additionally, Lotus will unveil plans for enhancements to the Vendor Independent Messaging (VIM) interface and to its Organizer group calendaring package, according to sources close to the company.

Ed Brill, an electronic-mail administrator at U.S. Robotics, Inc. in Skokie, Ill., said he is looking forward to a client/server version of CC:Mail because it will allow more robust forms and work-flow applications to be created than those now supported by CC:Mail's current flat-file database.

However, the success of Lotus' overall mail strategy depends on Lotus taking a more open approach to CC:Mail, according to both John Dunkle, president of WorkGroup Technologies, Inc., a consultancy in Hampton, N.H., and Rick Kirkland, a senior computing analyst at South Carolina Electric & Gas in Columbia, S.C. Lotus should provide technical manuals, similar to IBM's manuals, that provide detailed information on database structure, transport technology and all aspects of CC:Mail, Kirkland said.

A source within Lotus said that VIM is being enhanced to allow such development.

Delivery dates are another sticking point. "I want to talk to Lotus about their delivery schedules," said Bob Stratton, a technical adviser for Gulf Canada Resources in Calgary, Alberta. "When I come back and tell my user community that Lotus says we will have this, that and the other thing, and it doesn't happen, the users get pretty hostile."

For example, Gulf Canada is in the beta program for the Organizer's group scheduling program but still has not received the beta copy for the Macintosh version.

Also at the conference, Lotus is expected to announce the "Sequoia" updates to the current file-shared CC:Mail, including common features across different CC:Mail client platforms.

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Users want vendors to fill in Unix gaps

By Thomas Hoffman

■ Users who two weeks ago watched the Unix community rally around a set of common application programming interfaces (API) designed to run applications across a multitude of Unix operating environments have a few other Unix bones to pick [CW, Sept. 6].

Despite giving the common API specification a warm reception, users said they are still anxiously awaiting a similar consensus centered around industrial-strength systems management and security products. They need these capabilities to run mission-critical applications on Unix with the same stability users are accustomed to with their legacy systems.

"Systems management and security are clearly the two issues that need to be addressed up front as we move forward with Unix," said Donna Maria Krasner, manager of technical services at Chesebrough-Ponds USA Co. in Trumbull, Conn.

While several vendors have ushered systems management products into the fray, including Computer Associates International, Inc. and Tivoli Systems, Inc., users are awaiting a comprehensive set of systems management APIs to address multiple Unix environments simultaneously.

Several industry groups have tried to devise their own solutions, including the Object Management Group with Common Object Request Broker Architecture and the Open Software Foundation (OSF) with Distributed Management Environment (DME). But DME, slated for arrival no earlier than the end of 1994, may be superseded by the efforts of the Common Open Systems Environment (COSE), an ad hoc vendor group that is attempting to accelerate commonality among Unix environments.

A COSE working group is reviewing systems management requirements, but its direction is unclear, analysts said. It may adopt systems management interfaces from packages such as CA-Unicenter, the Tivoli Management Environment, IBM's SystemView and Hewlett-Packard Co.'s OpenView. Or the group may integrate the best-of-breed features within packages supported by the OSF, Unix International, Inc. and leading systems management vendors.

Meanwhile, the DME framework has been delayed by shifting objectives and disagreement about specifications among vendors in the OSF's working groups. To boost interest in DME, the OSF released prices for a limited number of DME components at Interop '93 August.

But some said the window of opportunity for DME is closing as products such as OpenView and NetView/6000 vie to be de facto standards.

Other major factors contributing to the systems management dilemma include the variety of technical issues that need to be addressed to develop a de facto systems management protocol and the political infighting occurring among vendors, said David Smith, an analyst at International Data Corp. in Framingham, Mass.

IBM to debut PowerPC boxes

Rollout targets low-end market; performance, speed get kudos

By Ed Scannell and Michael Fitzgerald

IBM this week will roll out its first PowerPC-based systems, which are said to be targeted at the lower end of the workstation market.

The systems will be powered by 66-MHz versions of the 601 PowerPC chip. The base system's configuration consists of 16M bytes of RAM, two Micro Channel Architecture slots and one local bus graphics slot, sources close to IBM said.

Pricing on an entry-level system without a monitor starts at just under $4,500. A configuration with a 19-in. monitor, a 1G-byte drive and three-dimensional graphics capabilities goes for roughly $9,000, the sources confirmed.

The price/performance characteristics of the PowerPC-based systems, according to sources, is impressive.

Test results, reported to analysts recently, show a SPECmark92 rating of 60 for integer performance and 70 for floating point. These results outstrip those of an Intel Corp. Pentium by roughly 30%, analysts noted.

The speed improvements are achieved by a combination of two key advances: the raw processing power of the system, which is said to use nine chips, and what one source described as a "graphics performance breakthrough."

"This stuff (new PowerPC-based systems) should put DEC in some deep yogurt [with Alpha] in terms of performance," said Frank Dzubeck, president of Communications Network Architects, Inc. in Washington, D.C. "IBM is getting numbers [benchmarks] out of this architecture that makes Crays look like toys."

IBM will also introduce a new version of AIX that slightly improves the speed and performance of DOS and Windows applications over what they can do in their native environments.

Sources said IBM will also show its PowerPC-based notebook, which was developed by Tadpole Technology, Inc. in Austin, Texas.

Novell taps Unix

CONTINUED FROM PAGE 1

will take place in a two to three years, Rekhi added.

By integrating UnixWare with NetWare, Novell should finally be able to stem the rising tide of its major users migrating to some other vendor's Unix/RISC platform when their critical business applications outgrow NetWare, said Paul Bandrowski, manager of advanced technology at Sara Lee Corp. The Chicago company has been experimenting with UnixWare.

Novell's plans for providing UnixWare with NMS support and NetWare 4.01's global directory services means "everyone can share everyone's everything," according to Charles Tilbury, network analyst at the University of Texas M.D. Anderson Cancer Center.

Right now, NetWare integration consists mainly of Novell IPX running on UnixWare clients. What Sara Lee wants is to have UnixWare servers and clients participating fully in Novell's enterprise directory and network management services in a "plug-and-play architecture" that would include both Novell's IPX and TCP/IP as underlying transports, Bandrowski said.

Not worth it

But so far Novell has not added enough value to its Unix system to make it worthwhile to stop using Hewlett-Packard Co. and Sun Microsystems, Inc. RISC/Unix platforms, according to Bandrowski.

UnixWare clients support TCP/IP as an add-on; Novell is expected to announce bundled TCP/IP for UnixWare shortly. And while Novell will continue to support Unix System Laboratories, Inc. OEMs, it hopes to reap major profits by selling packaged UnixWare to end users.

Novell is also rumored to be working with Oracle Corp. on a UnixWare version of the Oracle database with a built-in transaction monitor, which will provide a tightly integrated SQL database environment. This would provide the equivalent of the Sybase, Inc. implementation on NT, which shipped this week.

While UnixWare will go head-to-head with NT and the big Unix players in the application server arena, Novell has by no means abandoned NetWare as an application environment, spokesmen said.

Indeed, several works in progress at Novell are aimed at making NetWare a more robust application platform and will promote application portability across NetWare and UnixWare, according to Michael DeFazio, senior vice president at Unix Systems Group.

Novell may give Unix to X/Open

By Elizabeth Horwitt and Jean S. Bozman
NEW YORK

Reports swirled through the Unix industry last week that Novell, Inc. will bow to pressure from its major Unix OEM customers and turn over its Unix interface specification and brand name to X/Open Co., the UK-based Unix standards body. Novell bought its Unix from AT&T less than a year ago for $320 million.

The move will let Hewlett-Packard Co., Sun Microsystems, Inc. and IBM continue buying Unix from Novell without the fear of Novell making the system proprietary.

The immediate effect of handing the Unix trademark over to X/Open would be price cuts in the major versions of Unix such as Sun's Solaris, IBM's AIX and HP's HP/UX, industry sources said. With royalty-free access to Unix, vendors would no longer have to pay Novell for the right to use the Unix name.

Kanwal Rekhi, executive vice president of Novell's Unix Systems Group, confirmed that the company was working out details of "providing the industry with the use of our brand name" and ensuring a consistent, open Unix interface. Novell wants to "build on the Unix API work" that a number of key Unix vendors announced earlier this month [CW, Sept. 6], Rekhi said.

Novell sees X/Open as a "good company to administer" the Unix brand name and interface; however, whether Novell will make the announcement this week was still up in the air at press time, Rekhi said.

Trump card

"This is Novell's trump card to get the fractious computer industry to rally behind Unix and Novell's volume Unix strategy — to wit, UnixWare," said Maureen O'Gara, publisher of the "Unigram-X" weekly newsletter, which first reported the Novell activities last week.

The announcement would put some bite into Novell Chief Executive Officer Ray Noorda's claim last week at the Technologic Partners Conference in San Francisco that the industry's "job is to unify Unix."

If Noorda does indeed turn the Unix brand name and interface specification over to X/Open, that is emphatically "not giving Unix away," stressed Sun CEO Scott McNealy. "We've been talking about this for 11 years: the whole strategy of having open interfaces but proprietary implementations," he said. "Everyone wants to make money on their own implementations of Unix."

DCE: Ready, set...

CONTINUED FROM PAGE 1

moving things around," he said.

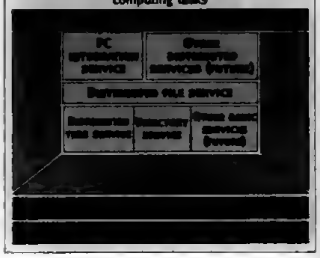
But Truch said he sees many potential uses for DCE because parts of BP Exploration's sprawling operations are all over the globe. "With DCE, you can solve some of the problems relating to the high cost of software licensing at multiple sites and of load-balancing between networked machines," he said.

The slow DCE ramp-up is similar to what happened with the OSF/Motif graphical user interface, OSF President David Tory said. "It wasn't until a year [after release] that the value-added solutions started coming out," Tory said.

That is no consolation to many users, who said they are still looking for independent software houses to provide DCE support for mainframe, minicomputer

Close-up DCE architecture

The OSF/DCE architecture is a series of network services for distributed applications designed to allow many computers to share in the cooperative computing tasks



and PC operating systems before they start any DCE projects.

Others with Unix environments have started DCE development for those platforms only.

"Apple doesn't yet have DCE support, nor is there DCE support for Windows," explained Kenneth Blythe, director of administrative systems at Pennsylvania State University in State College, Pa. "Unless you're working with a Unix machine, you probably can't use DCE yet."

However, IBM is working on MVS and VM support, he said, and has shipped OS/2 support. And Gradient Technologies, Inc. in Marlboro, Mass., is one supplier of desktop PC support for DCE.

But this summer's shipment of DCE tool kits by IBM, Hewlett-Packard Co. and others for Unix systems should boost operational DCE-based applications by 1995, users said. Other tool kits are being shipped by Gradient, Ellery Systems, Inc. in Boulder, Colo., the Open Computing Environment in Cambridge, Mass., and Transarc Corp. in Pittsburgh.

Some users are trying workarounds until DCE becomes a proven technology. Some are turning to relational databases as a stepping-stone to DCE because database engines generate their own database-specific remote procedure calls.

"The database companies do a marvelous job of client/server computing, but they do it in a proprietary format," Blythe said. "If you go for one of them, you've got to stick with them throughout all your applications." He is working with DCE to develop standard applications that can be shared among the Big 10 universities.

Others are waiting for a new project before applying DCE technology. That is because DCE requires a wholesale change in the way computing is done in an enterprise, users said. "You don't use DCE piecemeal," said Steven Jenkins, a software architecture engineer at the Jet Propulsion Laboratories' Deep Space Network in Pasadena, Calif.

For some sites, DCE's promise of uniting a mixed-vendor computing environment is compelling. Citicorp, for example, is evaluating DCE with several server platforms and on-line transaction processor monitors, according to Harriet Schabes, a vice president at Citicorp's corporate technology office in New York.

Mainframe applications will also be integrated into DCE networks, said Ted Hanss, president of the OSF End-User Steering Committee and director of the Center for Information Technology Integration, part of the University of Michigan's information technology division. In many cases, the mainframes will be transformed into servers on open systems networks, he said.

"Everything's a natural extension of the desktop interface," Hanss said, "and you don't have to know where the physical servers are."

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News Shorts

AST ships Pentium server

AST Research, Inc. last week started shipping its first Pentium-based server. The Premium SE P/60 includes Intel Corp.'s 60-MHz Pentium microprocessor, 16M bytes of RAM expandable to 128M bytes, 256K bytes of Level 2 cache and eight Extended Industry Standard Architecture expansion slots. The server can accommodate up to 8G bytes of optional internal storage. Pricing starts at $5,449.

Sun to finalize WABI

Sun Microsystems, Inc.'s SunSelect business unit said last week it will announce a final version of its Windows Application Binary Interface (WABI) for Windows applications at this week's Unix Expo show in New York. The "golden master" WABI 1.0 release will support Unix systems from IBM, Hewlett-Packard Co., Novell, Inc. and Sun, allowing Windows applications to run on those computers. Vendors will be able to ship the WABI with their Unix software products by year's end, SunSelect said.

Digital to ship Windows NT on Alpha

Digital Equipment Corp. said it plans to start shipping the Alpha AXP version of **Microsoft Corp.'s** Windows NT operating system this week on its DECpc AXP 150 PC. More than 500 Windows NT applications are expected to be available for the Alpha architecture by the end of the year, according to Digital officials.

IBM broadens LAN/host gateway

IBM is shipping an updated gateway between its mainframe-based OfficeVision line of office automation software and LAN-based electronic-mail software. The IBM Mail LAN Gateway/2 adds support for ObjectVision/VM and Professional Office System on the host side and Microsoft's Mail, WordPerfect Corp.'s Office, Da Vinci Systems, Inc. mail products and others on the LAN side.

SQL Server for Windows NT ships

Microsoft and **Sybase, Inc.** started shipping last week a Windows NT version of their jointly developed SQL Server database. Prices range from $845 to $14,995, depending on configuration. IBM OS/2 users can get a special discounted price of $995 for a 10-user system when they trade in OS/2-based versions of SQL Server, according to Microsoft.

SHORT TAKES **Lotus Development Corp.** will officially fulfill its long-standing commitment to deliver Notes on Unix at Unix Expo this week, releasing a version for SCO Unix from The Santa Cruz Operation. Versions for Sun, HP and IBM are expected to follow by the first quarter of 1994. A Unix version of Lotus' Ami Pro word processor will also be announced.... Remote networking vendor **Shiva Corp.** appointed former Lotus executive Frank Ingari as president and chief executive officer. Ingari served two hitches with Lotus, most recently as vice president of marketing. He was also CEO of Ontos, Inc. in Burlington Mass.... **Gateway 2000, Inc.** announced an Intel Pentium-based PC with a Peripheral Component Interconnect local bus, which is said to transfer data up to 15% faster than VESA bus designs. The P5-60 desktop PC comes with a 424M-byte hard drive, 16M bytes of RAM, a CD-ROM drive and a monitor for $3,595.... **Apple Computer, Inc.** is offering a new version of its PowerBook laptop PC through several mass market outlets. The PowerBook 145B is based on a 25-MHz Motorola 68030 chip and offers 4M bytes of RAM and an 80M-byte hard disk for $1,500.

Health care reform sets IT goals

Plan will propose, not mandate, standards

By Mitch Betts
WASHINGTON D.C.

When Chief Information Officers John Glaser and Larry Grandia testified before the Clinton administration's health care reform task force in March, they recommended that Uncle Sam take a limited, standards-setting role in the reform process rather than becoming technology czar for the health care industry.

As it turns out, President Clinton's reform plan, set to be announced this week, closely follows their advice. The plan relies heavily on the private sector to deploy information technology in the quest for more cost-effective health care.

For example, the Clinton plan focuses on setting data exchange standards rather than mandating a particular information systems architecture. Both Glaser, vice president of information systems at Brigham and Women's Hospital in Boston, and Grandia, CIO at Intermountain Health Care, Inc. in Salt Lake City, argued against broader federal IS mandates.

Database mixed

Early versions of the Clinton plan had called for a nationwide, distributed database of medical records, but that idea was "watered down" out of fear it would be too costly and difficult to quickly implement, according to Alan F. Dowling, national director of health care IS consulting at Ernst & Young in Cleveland. Still, "reading between the lines, there still are some incentives to move in that direction," he said.

"There are a lot of practical problems to overcome, including cost, confidentiality and data standards, before they can mandate it," said Doug O'Boyle, editor of "The National Report on Computers & Health," a Rockville, Md.-based newsletter.

The Clinton plan is expected to contain the following information technology elements:

- A "health security card" for every American, most likely a magnetic-strip card, containing basic administrative data but not a full medical record.
- A new National Health Board that must settle on electronic data interchange standards for electronic claims, payments and remittances within one year of enactment of the reform legislation.
- A still-fuzzy notion of community-based information networks that would allow doctors to exchange clinical data about patients on an ad hoc basis.

For some IS chiefs, the plan is rather anticlimactic. "We're being forced to do these things anyway, due to business and state [regulatory] pressures," Glaser said.

One big question is whether cash-strapped hospitals can afford to build the kind of IS structure envisioned by reformers. Grandia said the federal government should provide financial incentives for IS investments that produce efficiencies but have long-term paybacks.

"The government can't ratchet down our reimbursements and then ask hospitals to invest more," Grandia said.

But Charles J. Singer, a Wakefield, Mass., consultant specializing in health care IS, said it is a competitive necessity for hospitals to aggressively find the money for IS investments. "Why is it they can find $50 million to build a new wing but not $5 million for a new information system?" he asked.

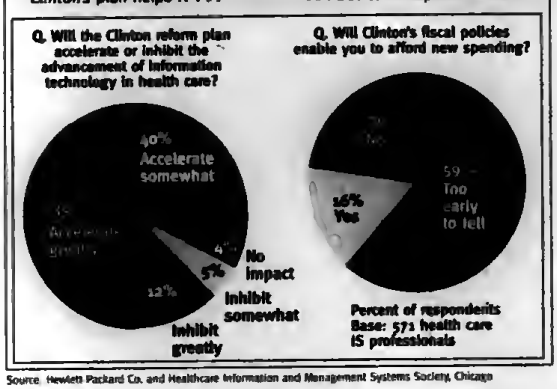
As a general rule, the move toward "managed competition" is triggering profound changes in the health care marketplace, experts said. On the "managed" side, hospitals will have to provide reports of their own cost-effectiveness to federal and state regulators and regional health cooperatives, which will then provide consumers with a "report card" on providers.

On the "competition" side, industry consolidation is expected to accelerate. The survivors will be those hospitals that can use information technology for competitive advantage.

For example, the winners will use their databases of patient information for targeted marketing campaigns, improving customer service and monitoring which services are profitable, said Yvonne Lederer-Antonucci, assistant professor of management at Widener University in Chester, Pa.

Taking IT's temperature

Clinton's plan helps IT . . . | . . . but can hospitals afford it?



Source: Hewlett Packard Co. and Healthcare Information and Management Systems Society, Chicago

Programming error delays Medex payments

Blue Cross/Blue Shield of Massachusetts last week confirmed that a programming snafu in the computer system used to process Medex claims caused a three-month delay in delivering reimbursement checks for medical bills to 3,500 subscribers.

Medex provides the elderly with supplemental health coverage for prescription, hospital and doctor bills that are not covered under Medicare. Subscribers must pay the bills up front and then submit claims to Blue Cross.

Last year, Blue Cross contracted outsourcer Electronic Data Systems Corp. to condense its nearly 40 computer systems into one information systems infrastructure.

An EDS spokeswoman said the error was caused by "typical post-implementation problems," including a holdup in implementing quality control procedures. "We have encountered a few bugs in the transitions, which have resulted in delays in processing a small number of claims, but they have been fixed," the spokeswoman said.

Blue Cross confirmed that the error caused roughly 9,000 claims — all filed by retirees of Polaroid Corp. — to be processed improperly, resulting in no payments. The delinquent payments will be sent out starting today, according to a Blue Cross spokesperson.

—Stephen P. Klett Jr.

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Millipore may take Notes from Beyond(Mail)

By Lynda Radosevich

Lotus Development Corp.'s decision not to offer a runtime version of its Notes groupware application at this time [CW, Sept. 6] has pushed some customers into considering an alternative to the product's high price tag.

For instance, Millipore Corp., a Bedford, Mass.-based filtration equipment manufacturer, uses Notes for electronic mail and to let salespeople access customer information. However, it is looking into a less expensive approach to E-mail for companywide use.

High on the list of contenders is Beyond, Inc.'s mail package, BeyondMail. It features an added facility called Beyond Notes Connection that gives users access to Notes databases, said Kevin Daehy, a senior business systems analyst at Millipore.

"Beyond lets you share and contribute to Notes engines without a Notes license. It's a big money saver," Daehy said.

For example, out of 1,000 users who need access to Notes databases, only 100 might need to create those databases. The other 900 would need just regular E-mail and perhaps occasional access to information in a Notes database. At roughly $350 (street price) per seat for Notes vs. $100 for BeyondMail with the Notes connection, the savings would amount to $225,000, Daehy explained.

List price for BeyondMail with the Notes connection is $140 and $495 for the Notes client user license.

"I hear customers asking for a runtime version of Notes, but Lotus said they have no plans to offer one, so the Beyond Notes Connection fits in there," said Jeff McDonnell, a partner at Northwest Net-Com, Inc., a Portland, Ore.-based consulting company. "The main reason is cost. A lot of users are paying for, but not using, Notes development capabilities at people's desktops."

There are 500,000 Notes users in 2,000 companies, according to Lotus.

Get connected

Besides cost, one advantage to the Notes connection is that it permits users to gather only the record that matches criteria in the BeyondMail forms, providing an added level of security for the Notes database, said Arthur Geffen, director of technical services at Veritas Technologies, Inc. in Dallas.

Additionally, users could find the Beyond product a better option for receiving updates while on the road or at home because it sends only the records that the user is interested in, rather than requiring the user to replicate entire databases, as Notes does, Beyond President Chuck Digate said.

To use the Beyond Notes Connection, customers must have a Notes server and BeyondMail. The software allows Beyond users to create forms that look like Notes database forms. Users can query the Notes database for records that match rules-based criteria in the form, and the matching records are sent to their BeyondMail mailboxes. Or users can add to Notes databases using the Beyond form.

However, the software is not meant to replace Notes. Users cannot create Notes databases, scroll through records in the Notes database or receive rich text messages, including image and sound objects, as Notes users can, Digate said.

Also, any of the Notes database links into other Windows-based applications are unavailable to the Beyond Notes users, he added.

Neither product is easy on developers because both Notes and Beyond's forms and rules utilities are complex, highly customizable applications that require significant development time, Geffen said.

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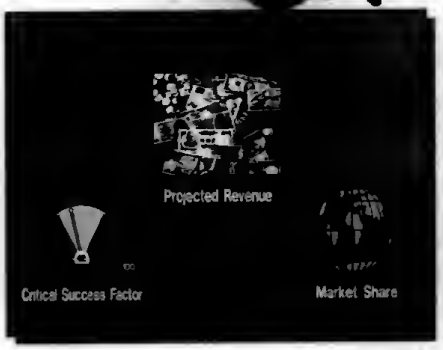

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FCC to carve up radio frequencies

By James Daly
WASHINGTON, D.C.

All eyes in the wireless networking community will be on the nation's capital this week: The Federal Communications Commission is expected to detail how it will auction off the precious radio frequencies that lightweight portable machines need before sales can take off.

It's about time.

While vendor commitment and user interest in personal digital assistants (PDA) remain high, the FCC has been criticized for being slow to displace the utilities, railroads and military bodies that have long used these frequencies for microwave communications.

Meanwhile, spectrum allocation activity by regulatory bodies in Europe and Japan has given competitors a head start in the race for wireless data communications markets.

"The usefulness of wireless, lightweight computers depends upon the government reallocating available radio frequencies among new and existing communication services in a timely and efficient manner — two qualities the feds have never been known for," said Chuck Jackson, a principal at Strategic Policy Research, Inc. in Bethesda, Md.

He said the FCC's foot-dragging could prove costly to U.S. companies. Jackson estimated that the decade-long delay in carving off more spectrum for emerging technologies has already cost U.S. firms thousands of jobs and billions of dollars in lost business — for example, for information service providers who would offer the applications and provide the data users would pay to tap into.

That may be changing. Last year, the FCC voted to release 220 MHz of radio spectrum for a gray area it dubs Personal Communication Services (PCS), but it allocated just 20 MHz of radio spectrum for use in wireless networks.

While even an extensive wireless network might sop up only a fraction of that bandwidth, if wireless communications really takes off, the FCC could find wireless vendors banging on its door.

And last week, the FCC conducted a lottery to parcel off the airwaves for use in interactive television. The move had many in the information systems community salivating for a quick repeat of a similar lottery for PCS. But analysts such as Richard Shaffer at the New York-based Technologic Partners consultancy said they do not see that happening before next year at the earliest.

Taking flight

When the FCC auctions off the frequencies needed for PCS, the following technologies could take off:
- Wireless laptops incorporating cellular, LAN and wide-area data transmit/receive capabilities.
- PDAs — handheld machines capable of remote electronic mail, fax or database access.
- Personal phones — cordless flip phones with data screen.

This week the agency is expected to announce how much frequency will be available, how many licenses it will award, the size of the service areas, the number of carriers per service area, the cash requirements for bidding in the auction and other particulars. Once those parameters have been established, the way is cleared for the airwave auctions.

Meanwhile, more than 250 companies have been conducting field trials under experimental licenses issued by the FCC.

Users, too, said they are looking forward to the potential of lightweight wireless devices.

"It's an area with tremendous potential," said Peter Wild, electronic data processing audit manager at Melville Corp., a $10.4 billion retailer in Rye, N.Y. Melville manages more than 8,000 retail stores such as Marshall's and CVS. Wild said wireless PDAs could quickly track goods received or record when deliveries are made.

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Unisys scales price/performance curve

New 2200/500 midrange system hailed as the first of lower-cost CMOS-based mainframes to come

By Thomas Hoffman
BLUEBELL, PA.

Last week's introduction of a CMOS-based mainframe by Unisys Corp. marked the first in a series of planned steps by the vendor to deploy the cost-effective technology across all future high-end hardware.

Not unexpectedly, users reacted favorably to the lower-cost models, while several analysts said the new systems have placed Unisys a solid year ahead of offerings expected from IBM and plug-compatible manufacturers.

All future 2200 and Unisys A series mainframes will incorporate CMOS — complementary metal oxide semiconductor — technology, including a 2200/900-class unit scheduled to arrive in the next 12 to 18 months. Moreover, users will not be forced to amend their existing operating systems or applications software, Unisys said.

The move to CMOS is part of an effort by Unisys to stem the flow of its mainframe customers to cheaper distributed computing models.

Those plans were favorably received by several 2200 and A series customers, who said they are looking for any and all cost reductions they can find. "As long as it's cheaper, I'm all for it," said George F. Thomas, senior vice president and director of data processing at the New York Clearing House, an A15 shop.

New York Clearing House's George F. Thomas: *'As long as it's cheaper, I'm all for it'*

The Unisys 2200/500 machines can be clustered with up to three CMOS and/or ECL-based 2200 systems using the Extended Processing Complex, a multiboard parallel processing feature introduced last April.

The Unisys 2200/500 machines can be clustered with up to three CMOS and/or ECL-based 2200 systems using the Extended Processing Complex, a multiboard parallel processing feature introduced last April.

The Unisys 2200/500 midrange machine, based on CMOS technology, is a more cost-effective on-line transaction processor than standard bipolar emitter-coupled logic (ECL) mainframes, according to analysts.

For example, Unisys executives said early in-house testing results have indicated that the 2200/500 can operate at a cost of less than $10,000 per transaction per second, or at one-fourth the cost of bipolar ECL-based 2200 machines.

Those price/performance levels also compare favorably with estimates for comparable ECL-based IBM ES/9000 machines, which analysts placed in the $40,000 to $60,000 transaction per second range.

Curtis R. Girod, a Unisys vice president, said the vendor plans to test the 2200/500 under the Transaction Processing Council's TPC-C benchmark by early next year. Analysts said IBM has not yet tested its ES/9000 mainframes against the TPC benchmarks.

In addition, the Unisys 2200/500 is equipped with one to four processors that can operate at speeds of 10 MIPS each. It is priced between $350,000 and $1.5 million, or nearly one-tenth the cost of ECL-based 2200 mainframes, according to Frank G. Brandenberg, a corporate vice president at the Unisys Computer Systems Group.

Lower cost lucrative

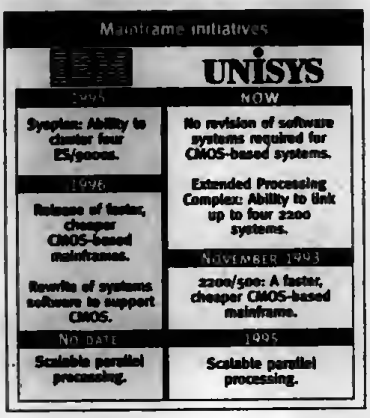
Still, the New York State Department of Social Services, which installed a pair of 2200/9222 mainframes at each of its New York and Albany data centers during the past year, is not quite ready to swap out for the CMOS-based machines. But the lure of implementing cheaper 2200/900 machines has grabbed the attention of David Prager, the project director for computer operations and support at the agency.

"The CMOS 900 class would be very interesting. I'm sure we'll be talking with Unisys when the time is appropriate," Prager said.

Most analysts said IBM and other competitors are still at least 12 months away from delivering comparable systems. "Unisys is farther along the price curve where they need to be than some of the other proprietary companies," noted Jim Johnson, chairman of The Standish Group, a South Yarmouth, Mass.-based transaction processing research firm.

Furthermore, IBM is expected to have a more difficult time wrestling with the technical challenges involved in enabling its MVS and other systems software to operate on a CMOS architecture, according to Wayne Kernochan, director of commercial systems research at Aberdeen Group, a Boston-based market research firm.

"It's going to require an awful lot of work to verify that [MVS] moves over to a CMOS architecture. That's a major, major task," Kernochan said.



Data center operations

Data managers ready for client/server

AFCOM

By Johanna Ambrosio
LAS VEGAS

Many of the data center managers at last week's Association for Computer Operations Managers (Afcom) meeting in this winner-take-all kind of town had one thing on their minds: what they stand to lose if they do not learn how to play in the client/server world, and quickly.

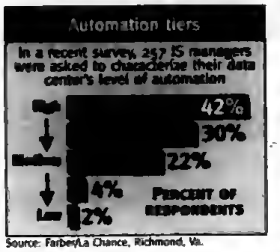
The semiannual meeting of Afcom, traditionally attended by the people who handle the care and feeding of the glass-house mainframe, featured speakers who are increasingly taking on responsibility for Unix-based and other kinds of servers. They urged operations managers to seize the chance to expand the data center's charter by going to their end-user organizations and asking what they might do for users.

"The Statue-of-Liberty kind of manager, who says 'Bring me any computer to take care of,' will have a job in a year. Those who are convinced that the only 'real' computers are big iron will not," said H. William R. Townsend, manager of computing services operations at Air Products and Chemicals, Inc.

Townsend's group, based in the company's main data center in Allentown, Pa., handles backup, disaster recovery, planning and other services for some 60 LAN servers, about half of which are physically located in the data center.

"Client/server is the No. 1 topic on members' minds," said Len Eckhaus, Afcom president. "It's really up in the air about who's responsible for servers, and we'll see a lot of experimentation as companies try to see what works for them."

In many cases, end-user groups are approaching the data center staff because they are weary of administering the LAN in their department, or it has become too large and complex for them to do so. But data center staffs, in turn, have to go through a mighty learning curve in regard to Unix, PCs and the need to straighten out some issues such as what happens when the server goes down and who is responsible for what.



Source: Farber/La Chance, Richmond, Va.

At the same time, data center staffs are still struggling with a more traditional job: automating procedures such as troubleshooting or bringing the host machine back after a crash. Even though most companies with mainframes have started this process, many have hit roadblocks because they are forced to adopt a piecemeal approach. Either they lack the people or management buy-in to implement the tools correctly or they lack the money to buy software or expertise.

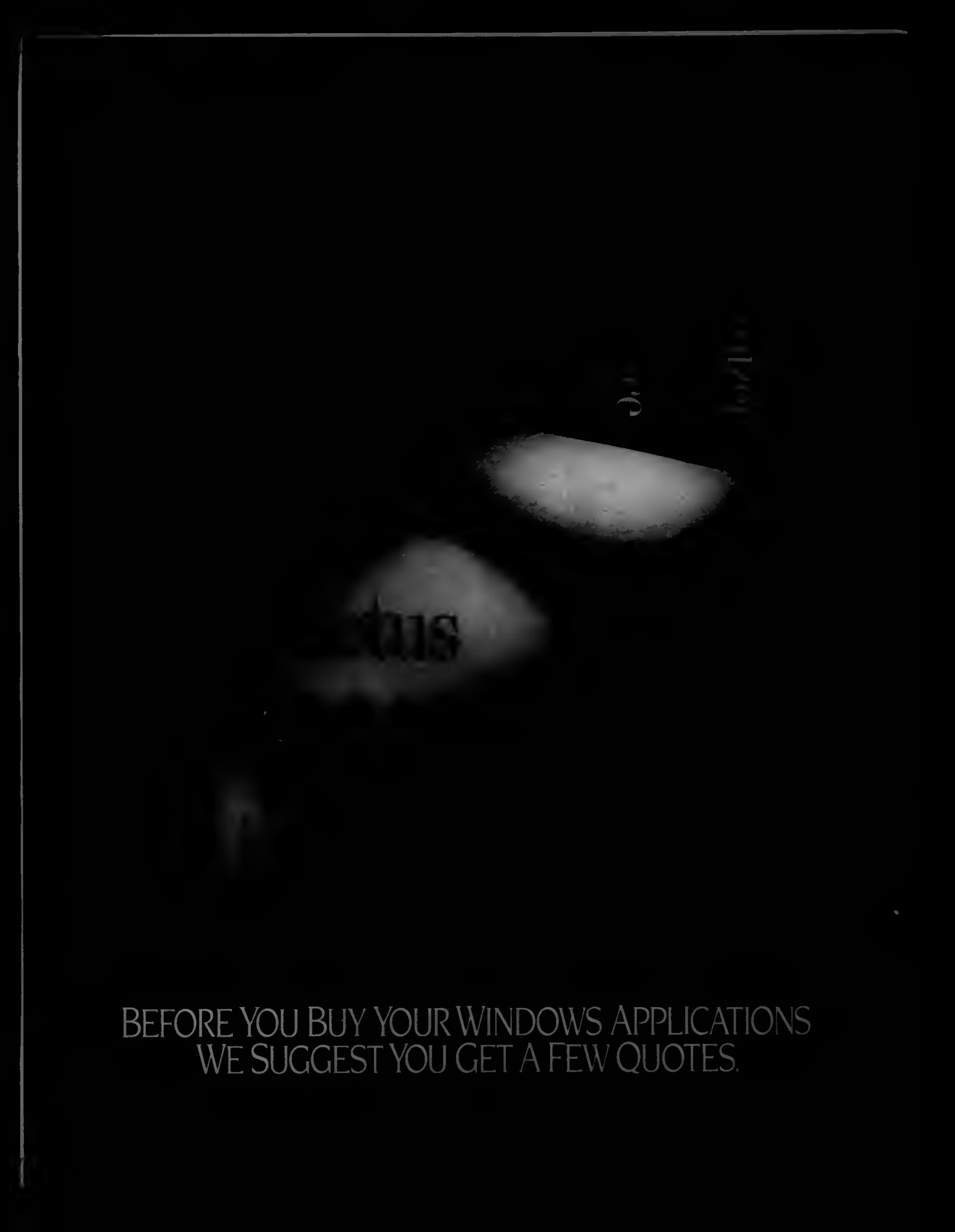
A typical example is a Northeast insurance company, whose operations manager said, "We've done a lot of automation projects, but we have five separate sets of people working on this problem [separately]. We're so big, we have no idea where it belongs." He said he is trying to get management to stop buying products and commit three or four people to a team so they can straighten it all out.

Time to refocus

That is exactly the tack taken by Westpac Banking Corp. in Sydney, Australia. A couple of years ago, the bank — one of the country's largest — revamped its whole approach to data center automation. "We needed to reassess what we were doing," said Stephen Moller, manager of operations automation. "We had a lot of products, which we had modified beyond belief — to the point where the vendors would no longer support us. We lost sight of where we were going."

Where before it had focused on product development, the bank instead started looking at its processes to see where things were breaking down. In addition to switching over to more off-the-shelf solutions, the company implemented a cross-functional team approach to automation throughout the bank.

The results have been good so far, Moller said, and include better communications among the data center staff, a two-hour increase in the batch window each day and 800 hours of manual work eliminated per week.



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Windows Spreadsheet Ratings

"1-2-3 Release 4 ..... 7.8"
"Excel Release 4.0 ..... 6.9"
"Quattro Pro Release 1.0 ..... 6.5"
InfoWorld 10/92, 8/93

"The SmartIcons in 1-2-3 for Windows are smarter and Lotus's approach to swapping different tool-bars in and out beats Excel's and Quattro Pro's."
PC/Computing 6/93

"1-2-3 LEAPFROGS EXCEL AND QUATTRO"

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Walter S. Mossberg
Wall Street Journal 7/29/93

–*PC World* 6/93

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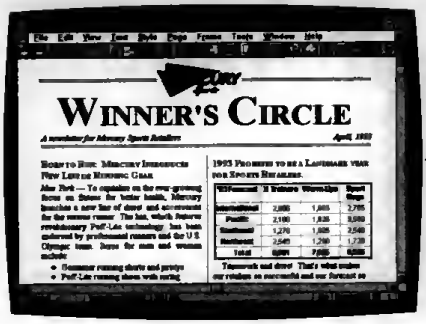

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POWERPOINT 3.0 SCORED 83.6, HARVARD GRAPHICS 2.0 SCORED 80.4" – *PC / Computing* 9/93

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Microsoft PowerPoint
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Software Digest 7/93"

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The applications in SmartSuite 2.1 are closely integrated, sharing a consistent appearance and behavior. This reduces the time it takes for a user to learn each application. For example, the three most used applications in SmartSuite share 26 common SmartIcons® (In Microsoft® Office, they share 3).

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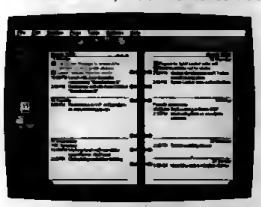

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—*PC Letter* 6/7/93

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Dataquest 6/15/93

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Starting over

Apart from Ebenezer Scrooge and a few people in supermarket tabloid articles, none of us gets the chance to preview our own death and return to tell the tale. However, Wang Labs, which hopes to emerge from Chapter 11 bankruptcy protection this week, has done the business equivalent during the last 13 months and is returning as a smaller, wiser and more focused company.

Wang President Joe Tucci winced last week when I used the term "miracle of Chapter 11" during a visit to Wang's Lowell, Mass., headquarters. But bankruptcy really can be a miracle worker, considering that last summer Wang was staring down a black hole. Collapsing under the weight of a half-billion dollars in debt, 10-year leases on unused buildings, a shareholder revolt and mass customer defection, Wang's survival prospects looked dim.

But the Wang that emerges from bankruptcy this week will have a nearly spotless balance sheet, buttressed by $150 million in cash. Its debt/equity ratio is down from 90% to 1%. The company walked away from many of its lease obligations and turned creditors into shareholders. It plans a public offering in the fall, and the Wang family will no longer call the shots.

The reborn Wang sees itself as a software firm targeting the imaging and office work-flow markets. It will continue to support and even enhance its VS series of minicomputers while moving those customers smoothly onto something else until it brings its line of imaging and work-flow software up to speed. And like everyone else in the industry, Wang plans to be a network integration firm.

But whether this self-proclaimed "billion-dollar start-up" can make a go of it as a software company is questionable. Certainly, Wang has the financial wherewithal to move ahead and its products are world-class. But some of the luster has worn off the imaging market in the past year as high expectations were not met. Wang is also counting on service dollars from its installed base for nearly half its revenue next year. With many Wang users running, not walking, away from the VS platform, that figure is sure to decline pretty quickly.

Will office software, which will constitute only about $100 million in Wang sales this year, be there to make up the difference? Maybe, but in an industry in which you can still count the number of billion-dollar software firms on one hand, that's a stretch.

Wang's got a chance to start over, which few computer companies ever do. The important thing during the next six months is to make a splashy return, keep existing customers happy and show some growth. I don't doubt Wang can take care of the first two items on that agenda. I hope its business plan is on the mark to handle the third.

Paul Gillin, *Editor*

Ramsey's ghost: An optical illusion?

You have caused me to write to you about your editorial "Ramsey's ghost" [CW, Aug. 30]. You are doing well in the stirring-up trouble department. To disagree with you is my purpose in this letter.

To compare that action as a simile for the Justice Department action on Microsoft is in poor taste. You tainted Ramsey Clark, the Democratic Party, the Republican Party, the Federal Trade Commission (FTC), the Clinton administration, the Bush administration and others with character assassination.

Since you do not perceive the point of law, I suggest that you interview your faywer on the topic of antitrust and deceptive trade practice laws. Then I suggest you review past actions by the accused. See if you can find suspect actions that might justify action.

You should not compare past legal actions without stating the root causes. In your article you did cite a base motive as the cause for the IBM investigation. You suggested the same base motive for the Microsoft investigation while expounding on the deadlock at the FTC. Since you did not state the alleged causes for the Microsoft investigation, you unjustly painted Microsoft as a victim.

William L. Hartzell
Garland, Texas

In regard to your Aug. 30 editorial, one question that keeps plaguing me: Why aren't you working for *The National Enquirer*?

The time has come to get your head out of your GOP and take a good look at reality. In the past six months, there has been a rash of articles and editorials written on just what went wrong for IBM. However, the thought that IBM's current problems could ever be attributed to Ramsey Clark and the Democrats is the most ludicrous of all.

You and I seem to recall the '70s differently; I don't remember IBM as being a great and innovative company, just a large and dominating one. What you want to call IBM's "bunker-mentality" was viewed by many as IBM's elitist attitude.

IBM's current problems are a result of its underestimating the intelligence and needs of its consumers. Your inability to recognize this is understandable in light of the fact that you seem to have the same failing.

Michael McFarlin
Newfane, Vt.

Your excellent editorial on Microsoft was very good. However, don't you think that the expression "deja vu all over again" has been overused too many times?

When it was originally used for the first time, it was an amusing phrase which was funny, since it's repetitious in its redundancy. Don't you think that enough is enough is enough?

P.S. This letter was written using a RAID disk array.

Gary McGath
Penacook, N.H.

Your editorial on the forthcoming Microsoft/Justice Department investigation implied that the 11-year IBM/Justice Department suit was a waste of time and effort. Nothing could be further from the truth.

Within six months of the suit, IBM unbundled its software products, except for operating systems. In 1979, the company unbundled its operating systems software.

During the period of the suit, IBM was careful not to preannounce hardware and software products and kept its pricing competitive.

The suit encouraged the EEC suit of the early 1980s, which resulted in IBM agreeing to disclose all hardware and software interfaces at time of first delivery.

Without that suit we might not have a wide choice of operating systems, a competitive hardware and software environment or the ability to have open systems.

Martin A. Goetz
President
Goetz Associates
Teaneck, N.J.

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Tidal wave approaching

Jerrold M. Grochow

You thought we already had a crisis in software maintenance? You ain't seen nothin' yet.

For the past decade, we have been trying to deal with the maintenance of software in a relatively stable, technologically contained environment. By and large, applications used the same technology: They ran as monolithic systems on large machines accessed by text terminals over a single type of network. (Of course, there were many manufacturers, but you typically used only one.)

If you were writing business applications, you wrote them in Cobol. Programmers followed fairly well-understood methods and standards. And the development staff all worked for the same organization — the central IS department.

Now consider the kind of environment taking shape around us today. Application development methods are in turmoil. We are being asked to develop applications that use many different operating systems and user interface protocols and that connect over many types of networks. We are rushing headlong into distributed processing, where some parts of an application run on one computer and some on another (possibly incompatible) computer.

Because we are being told to use the right programming language for each job, we often have multiple languages in simultaneous use.

Tool vendors are popping up everywhere with development environments that promise amazing levels of productivity improvement but that often use proprietary languages. And now application developers are scattered all over the organization as end-user departments seek more direct control over their applications.

Where will all this lead?

If we don't do something soon, it will lead to total chaos in software maintenance over the next five years.

Here's a nightmare to consider: It's 1998. End-user departments have decided that the maintenance of the applications they have been creating is really the responsibility of central IS. So suddenly it's your job to enhance systems that were built using some of those very productive but also very proprietary code generators that were so popular a few years back. Unfortunately the vendors of these tools no longer exist so you can't expect any help from them as you struggle to get the resulting systems to work with new types of user workstation environments, such as Microsoft's follow-up to Windows NT.

I don't believe for a moment that the "new" languages are "self-documenting" or that there will be so few lines of code in each procedure that everyone will be able to figure out what its original developer intended to do. Nor do I believe that object technology will, in and of itself, make systems so modular that making changes will be as simple as switching one object class method for another.

Our only hope is the rapid institutionalization of common architectures and standards across the organization. That isn't something

we've been very successful at, but that has to change and change quickly. We really don't have a choice about keeping things in control this time. This time, we have to make it work.

Grochow is chief technology officer and director of the American Management Systems' Center for Advanced Technologies.

The false promise of APIs

FIRE WATCH *by* John Gantz

We are awash in application programming interfaces, consortia to develop them and false hopes about what they will do for us. There are API groups for everything these days, from E-mail, messaging and calendaring to network middleware and wireless communications. Trouble is, consortia-backed APIs don't really help anyone except the participating vendors.

> Committee developed APIs come with enough options for implementation as to contradict the idea of a standard.

APIs may have the cachet of openness, but they are really instruments to advance proprietary interests. By developing these interfaces jointly or jumping on existing bandwagons, vendors may cut development costs and increase their universe of prospects, but they aren't going to solve user compatibility and portability problems any time soon.

Since the industry now consists of Microsoft and all others, we generally see two competing sets of APIs for just about any computing function you can imagine — Microsoft's and those offered in opposition by a consortium.

The Unix vendors, for instance, began work earlier this year on a common set of APIs that, at least theoretically, will allow applications (with recompile) to run on different Unix platforms. Six of the major Unix vendors led the charge spurred on by visions of Windows NT marching through their developer bases. Now 75 are on board. The group is known as the Common Open Software Environment (COSE) coalition, and already there are 1,170 specific APIs in the COSE spec.

Another good example is Common Object Request Broker Architecture (Corba), a specification developed by the Object Management Group that will compete with Microsoft's Object Linking and Embedding (OLE) technology. There are already two anti-Microsoft camps developing OLE-like APIs based on Corba.

Now, I ask you ... do you really think that all 75 of those Unix vendors will adopt the same subset of those 1,170 APIs in the COSE suite and do it in the same way? Do you honestly believe your programs will be able to run on any Unix operating system with a simple recompile? (And *is* there such a thing as a simple recompile?) And how much would you be willing to bet that those two camps of OLE competitors will offer interoperable APIs? Let's face it: It's tough enough for a single vendor to have its own products adhere to a single set of common APIs.

My beefs with committee-developed or bandwagon APIs are the same as my beefs with other standards. They are usually developed out of a political process with minimal input from users. They are generally completed long after the market has found another solution. They come with enough options for implementation as to contradict the idea of a standard. There is always a hidden cost to convert. And there is no assurance of forward compatibility.

APIs free us from writing programs to specific operating systems or hardware specs but not from writing to thousands of APIs, each with multiple options for implementation. There is only one Windows NT, but there are three different programming APIs for it (Win32, Win32s and Win32c). Writing to the Novell NetWare 286 API didn't mean applications would run on NetWare 386.

As long as vendors compete, consortia-developed APIs will be designed to the lowest common denominator. They'll offer enough commonality to compete with the market leader, but not much more.

Gantz is senior vice president of International Data Corp., where he is responsible for all research and consulting in desktop automation and workgroup and office computing.

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Notebook computers

IBM ThinkPad 750s late but welcomed

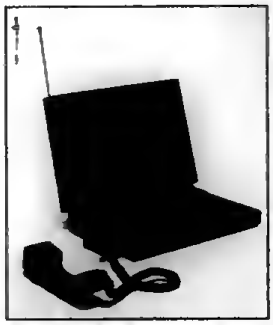
By Michael Fitzgerald
NEW YORK

The IBM PC Co.'s new ThinkPad 750 family of notebooks offers a complete redesign. The result is a product that weighs significantly less than most, promises dramatically longer battery life and has features such as multimedia support, extensive communications options and easy upgradability. But the 750 carries the burden of its predecessors, which were well-received but suffered availability problems.

"We've hit a home run with this one," said Bruce Claflin, president of PC Co. Americas, and observers appeared to agree. Claflin compared this rating to his rating the popular ThinkPad 700 as a "double."

Still, a promising big hitter offers only potential if it cannot deliver, and PC Co. officials seemed to concede the company may remain in the minor leagues in terms of meeting demand.

"We do not expect to catch up to our demand in the fourth quarter," said Michael Coleman, the PC Co.'s vice president of brand management and marketing. However, he insisted the company would produce more ThinkPads this quarter than last, which may help reduce supply problems.



New ThinkPad 750 *will provide a cellular communications option*

Also, the Model 750C, a unit outfitted with what IBM describes as a high-quality, passive-matrix color screen, has a late November ship date. IBM said the 750C is a way to siphon demand from its hard-to-get active-matrix color ThinkPads.

Shipping or not, the new 750 line has enough features to make competitors sit up and take notice, analysts said.

"It's hot, and I think it'll force the other vendors to address its features," said Randal Giusto, an analyst at market research firm WorkGroup Technologies, Inc. in Hampton, N.H.

The ThinkPad's sophisticated array of multimedia features includes a built-in 16-bit stereo audio subsystem, which has a speaker and I/O jacks. Also, Mwave, an analog-to-digital converter chip from IBM and Texas Instruments, Inc., resides on the motherboard. These features will allow users to run television images online or do full-motion video.

Needed extras

While analysts such as Jeffrey Henning at BIS Strategic Decisions in Norwell, Mass., said these features would appeal "to a distinct minority of notebook users," at the same time it could not hurt the PC Co. to add the extra technology since it has kept pricing aggressive.

And users whose sales forces give many presentations said the multimedia capabilities are attractive.

"Under the right circumstances, [multimedia] is something we'd like to do," said Ron Edwards, director of sales operations at Nike, Inc. in Beaverton, Ore. Edwards stressed he has not seen the new ThinkPads but would like to give Nike sales representatives the ability to put 30- to 60-sec. full-motion videoclips into sales presentations through Microsoft Corp.'s PowerPoint or Asymetrix Corp.'s Compel application.

Victor Mutnick, vice president of corporate information systems at New York Life Insurance Co., said the ThinkPad's multimedia capabilities mean that the big insurer will start looking into developing multimedia applications.

"We do find [multimedia] interesting, but it's probably a year or two ahead of us, and we don't see investing in hardware now when you know there'll be something better then, probably from IBM," Mutnick said.

The ThinkPad's design also appears to give it a step up on the competition. The keyboard flips up to allow users to easily upgrade the hard disk and change the battery. It also lets users remove the floppy drive, either to lower the traveling weight or to add in some optional modules such as a wireless modem or, in the first quarter of next year, a cellular digital packet data wireless modem or TV Tuner module.

Users doubtful

Some users questioned whether the PC Co. was actually serious about upgradability, given the entirely new form factor and design of the ThinkPad 750.

"I'm a little annoyed on the 750 because it is a completely different form factor, which I think means they've forgotten about upgradability," Mutnick said.

PC Co. officials said that while hard drives from older models will not fit into the newer ones, the company will at the same time build versions of the 340Mbyte hard drive for its 700 and 720 products and will also build versions of the wireless modems and other module add-ons for its older products.

Your choice

The 5.5-pound ThinkPad Model 750 costs $3,199 with a 170M-byte hard drive and $3,749 with a 340M-byte hard drive. The 6.2-pound Model 750CS costs $3,899 and $4,449, respectively, for the same configurations. The 6.4-pound Model 750C costs $4,699 and $5,249, while the pen and keyboard Model 750P costs $3,749 and $4,299.

Lower-cost Digital Alpha AXP awaits vendor support

By Craig Stedman
MAYNARD, MASS

Following the recent introduction of a lower-cost Alpha AXP microprocessor, Digital Equipment Corp. said it hopes in the next six to nine months to start enticing any major PC vendors besides itself and business partner Ing. C. Olivetti & Co. to commit to building Alpha-based systems.

Kevin Fielding, senior product marketing manager for the DECchip product line, noted that Digital is talking most seriously at this point with second- and third-tier vendors. These companies "are in danger of going out of business" because they face fierce competition in the market for X86-based PCs and need to find alternate revenue sources, he said.

Fielding would not comment specifically on any negotiations but cited Northgate Computer Systems, Inc. and Everex Systems, Inc. as examples of the type of vendor that Digital might be able to snag in the short term. The cream of the PC crop — companies such as IBM, Compaq Computer Corp. and Dell Computer Corp. — are maintaining a wait-and-see attitude toward Alpha, he added.

Digital needs support from other vendors to help ship the 4 million to 5 million chips it said are needed per year to fund its Alpha investments, analysts said. A lot, therefore, is riding on the new DECchip 21066, which is targeted at PCs that run Microsoft Corp.'s Windows NT and cost as low as $2,500 [CW, Sept. 6].

"It's very critical for them to get this chip out and have it be successful," said Linley Gwennap, senior editor of the "Microprocessor Report," a newsletter in Sebastopol, Calif. Digital needs increased volume to attract not only other hardware makers but also software vendors, he added.

Thus far, Digital has signed up several small PC vendors in addition to its own PC unit and Olivetti, in which Digital is a minority investor. Included is Carrera Computers, Inc., a Laguna Hills, Calif., vendor that recently started shipping a deskside PC based on the original DECchip 21064 device.

Guiding hand

A potential drawback to getting more companies to join the fold is that lower-tier suppliers pressed by the PC price wars "don't have a lot of design resources" available for an Alpha project, Fielding noted. As a result, Digital will sell Alpha-based motherboards or provide sample board designs as a "development guideline," he said.

The 21066, which runs at clock speeds up to 166 MHz and uses 21 watts of power, is scheduled to go into volume production in the first quarter of 1994. Due out late next year, meanwhile, is a 21066 derivative that will be targeted for use in portable machines running Windows NT, Fielding said.

That device should require less than 2½ watts of power on a continuous basis, according to Fielding. He said, though, that Digital does not expect much of an NT portable market to develop for at least the next few years.

Larry Stiefvater, research principal at the Kraft General Foods Research Technology Center in Glenview, Ill., said Kraft's technology demonstration workers, who travel regularly, might benefit from an Alpha-based portable. But most users do not need that much power, he added.

Double or nothing

Digital also plans to release a faster version of its flagship DECchip 21064 microprocessor before the end of the year. Kevin Fielding, a manager for the DECchip devices, said clock speed should be 50% faster than the first version of the 21064, which would put it up in the 300-MHz range. Performance is supposed to get an even bigger boost: The size of the dual memory caches on the 21064 will double to 16K bytes each, Fielding added.

Software suite wars

Lotus takes offensive against Microsoft

By Michael Vizard

After virtually ceding the PC software suite market to its archrival for the past two years, Lotus Development Corp. is putting the finishing touches on a makeover of its SmartSuite offering. The changes are intended to give Lotus enough muscle to compete for the first time with Microsoft Corp., which owned an estimated 77% of the suite market last year.

The latest Lotus move consists of adding a version of the Approach database, which Lotus acquired earlier this year, to SmartSuite. At the same time, Lotus is dropping the CC:Mail client software from the suite, which essentially allows the company to add Approach without raising the price, and enhancing the integration of its 1-2-3 spreadsheet.

The arrival of this version of SmartSuite will give Lotus an offering that for the first time does not imitate Microsoft Office. A $795 SmartSuite package will consist of Approach, Ami Pro, 1-2-3 Release 4.0, Freelance Graphics and the Organizer personal information manager.

In contrast, a $750 Microsoft Office package includes the Excel spreadsheet, Word word processor, PowerPoint presentation graphics and a client license for Microsoft Mail. Microsoft also has a $950 version of Office that includes the Access relational database.

Until the arrival of 1-2-3 Release 4.0 earlier this year, Lotus' ability to compete in the suite market had been hamstrung by a poor Windows implementation of its flagship software package. Last week, Lotus moved to supplement 1-2-3 with an upgrade that adds support for Lotus' Application Exchange Field facility, which is an implementation of Version 1.0 of Microsoft's Object Linking and Embedding (OLE) interface for Windows.

Complementing this move is the addition of Approach, which has been updated to support the SmartIcons included in all Lotus applications. The database strategies, alongwith their respective electronic-mail efforts, differentiate the two companies' suite offerings.

Lotus' Approach was designed to be an easy-to-learn database without a programming language for end users who, Lotus said, typically do not need to develop applications.

Microsoft countered that Access, which includes Visual Basic as its programming language, provides an end-user tool that can scale upward as needs increase. "The trick is to provide an easy-to-use database that can scale upward," said Hank Vigil, Microsoft director of marketing for applications.

Suite failings

Users expressed concerns about quality degradation and compatibility with other software when shopping for packaged productivity tools

Top-rated considerations

Failings		Considerations without cost
Perceived loss of "best of breed" products	1	Compatibility with existing software
Ending up with unneeded products	2	Cost
Loss of flexibility/ limited to one vendor	3	Features
Hardware drain	4	Maintenance and support policies

Source: International Data Corp. Framingham, Mass.

For example, Advanced Communications Technology Corp. in Minneapolis opted to replace Approach with Access three months into a development project, said John Cavanaugh, a senior vice president at the telecommunications consulting company.

Cavanaugh said his firm found that the query facilities in Approach were too limited for its needs.

He also said that while Approach is definitely easier to use than Access, the Microsoft database has more to offer. In addition, Microsoft is expected to deliver an easier-to-use Version 2.0 of Access later this year.

On the E-mail front, Lotus said its research has found that the people who purchase E-mail are not the ones who purchase PC applications.

But Vigil said E-mail will be an important part of Microsoft's still unfolding groupware strategy, which justifies continuing to put Microsoft Mail client software in the suite.

For Lotus to compete in the suite arena against Microsoft, which has sold more than 2 million suite licenses worldwide to date, it will have to focus heavily on getting 1-2-3 for DOS customers to adopt the entire Lotus suite.

For example, Holland America Line-Westours, Inc. in Seattle is looking at moving from 1-2-3 for DOS and Professional Write from Software Publishing Corp. to SmartSuite.

Scott Brady, data resource manager, said the potential move to SmartSuite is being driven by economics and the firm's reliance on 1-2-3. He said Lotus has a more flexible licensing structure that supports concurrent users.

What a feeling

In general, industry analysts credit Lotus with having an edge over Microsoft in terms of providing a well-integrated suite offering because all Lotus applications support OLE 1.0 and share a common code basis that allows them to have the same look and feel.

"With SmartSuite 2.0, it just feels right," said A. J. Dennis, an industry analyst at International Data Corp. in Framingham, Mass.

The challenge for Lotus will be whether it can leverage that advantage as corporate shops move from DOS to Windows before Microsoft delivers Microsoft Office 4.0! this fall. That version will add OLE 2.0, a common macro language and intelligent agents to the suite.

In fact, Lotus has been moving too slowly for some customers. K. C. Madden, a business decision-support consultant at Kraft General Foods, a subsidiary of Phillip-Morris Corp. in Hawthorne, N.Y., reported that his division is eschewing 1-2-3 in favor of Microsoft Office.

"We made the decision before 1-2-3 Release 4.0 came out. We're going to stick by our decision because the vendors keep leapfrogging each other. Microsoft has a new generation of applications. We may look at it again in two years," Madden said.

Playing its trump card

One of the cards Lotus has yet to fully play is the integration of its applications with its Notes groupware environment.

With the last release of SmartSuite, all Lotus applications can use a common implementation of Version 1.0 of Microsoft's OLE facility to communicate with Notes. But Lotus has not yet moved to bundle Notes into a suite offering, which would simplify the purchase process and provide a price break to sites that standardize on Lotus applications and Notes.

A. J. Dennis, an industry analyst at International Data Corp., suggested that Lotus bundle Notes client software with SmartSuite and then raise the price of the Notes server edition to make up for lost revenue. By doing so, Lotus would introduce customers to Notes on a wide-scale basis while providing a suite offering that rivals could not duplicate, Dennis said.

"Lotus has the potential to use SmartSuite to hook users into Notes," said Krystyna Filistowicz, an industry analyst at Dataquest, Inc. in San Jose, Calif.

Lotus has indicated that it intends to offer a SmartSuite edition that includes Notes but has given no time frame for that move.

Will Reynolds, Lotus development manager for SmartSuite, said Lotus maintains an edge over rival applications in a Notes environment because it builds applications with Notes integration in mind. Lotus is also expected to further leverage Notes by delivering a document management system for Notes later this year.

—Michael Vizard

More serving options

International Data Corp., a market research firm in Framingham, Mass., expects that 2.1 million suite licenses will be sold in 1993, with the average Windows user having 5½ applications on his desktop.

Banding together

While Microsoft and Lotus have been playing up the integration benefits of low-cost application suites, industry rivals that do not possess the same breadth of software have been banding together to deal with users' growing interest in suites.

A case in point is Borland International, Inc.'s move to market Borland Office, which combines Borland's Quattro Pro spreadsheet, its Paradox database and WordPerfect Corp.'s WordPerfect word processor into a single offering.

But for Borland and WordPerfect to be successful, users said they will have to prove their software offers substantial benefits over the individual components that Microsoft and Lotus have included in their suites.

For example, WordPerfect is about to ship Version 6.0 of its namesake word processor for Windows. WordPerfect users said they are confident the company's plans to support Version 2.0 of Microsoft's OLE will provide sufficient integration capabilities.

"We've looked at WordPerfect's integration plans. I think the suite integration issue is a lot of marketing," said Harris Televitz, director of technology at Skadden, Arps, Slate, Meagher & Flom in New York.

"For us, suites will be provided by two vendors [Borland and WordPerfect] under one umbrella," added Rock Blanco, vice president of information systems at Garber Travel Services in Boston.

Enticing WordPerfect users to its SmartSuite offering may prove challenging for Lotus. Thus far, its Ami Pro software has only a 10% market share, and WordPerfect has just shipped a new release. Microsoft, meanwhile, has the top-selling word processor for Windows.

However, Lotus should be able to gain market share against WordPerfect by leveraging suite sales, said Krystyna Filistowicz, an industry analyst at Dataquest, Inc.

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Cyrix competes with Intel in 486DX class

By Michael Fitzgerald
RICHARDSON, TEXAS

Intel Corp. today is expected to gain companionship in the market for its high-margin 1486DX2 clock doubler, which could result in lower prices. Cyrix Corp. is scheduled to release three 486DX-class processors, including one that competes with Intel's 25/50-MHz DX2.

In other news, Cyrix landed its biggest customer to date, with the announcement by Zenith Data Systems Corp. of three new notebooks based on Cyrix's 33-MHz 486SLC part. The Z-Star 433VL family, which is priced starting at $1,399 for monochrome and $2,399 for passive-matrix color, is aimed at the low end of the market. Cyrix officials said Hewlett-Packard Co. will use the SLC part in its OmniBook subnotebook, although HP would not comment on that claim or Intel's own claim that HP will use its SLC.

Cyrix officials said they do not expect to put more than 100,000 486DX units on the market this year, so it will not outship Advanced Micro Devices, Inc. in the 486 market, or approach Intel's multiple 7-figure unit volume. However, analysts said the Cyrix chip could still impact Intel's DX2 pricing. "The large majority of Intel's profits come from the DX2, so if somebody nips at its costs, Intel will probably have to drop prices," said Kimball Brown, an analyst at Computer Intelligence/InfoCorp in Santa Clara, Calif.

An official at one systems vendor, who asked not be identified, said, "Anything that lets us go to Intel and plead competition can only help us."

Cyrix has added an 8K-byte cache to its DX2 and tweaked the instruction set so it will run certain instructions more quickly than Intel's chips, though Cyrix officials said they were unsure of the performance gains users might achieve.

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Utilities shakeout gains momentum

By James Daly
CUPERTINO, CALIF.

Symantec Corp.'s purchase of Fifth Generation Systems, Inc. begins the consolidation of the competitive utilities field, which was sparked last March when Microsoft Corp. introduced the refreshed DOS 6.0 operating system featuring a passel of new utilities.

Symantec officials said they will acquire the Baton Rouge, La., utilities software maker in a stock swap worth about $44 million. The move is subject to government and shareholder approval and is slated to be completed within 30 days.

The companies said the acquisition will give them the chance to focus on the distributed computing market. "The stand-alone utilities market is not a growth market anymore," said Ellen Taylor, general manager at Symantec's Peter Norton Computing Group. "The real opportunities lie on the networks."

That realization was sharpened after the introduction of DOS 6.0. Many in the field said they felt that Microsoft's inclusion of utilities such as compression into DOS 6.0 could force producers of other utility products out of the market.

Fifth Generation President Barry L. Bellue said this spring that the DOS 6.0 utility additions caused a 35% drop in sales of utility applications among all manufacturers in a recent quarter.

In addition, Stac Electronics, Inc. already faces tough financial straits and has laid off nearly 20% of its work force.

Nine-year-old Fifth Generation develops utilities for DOS, Windows, OS/2, Unix, Macintosh and Novell, Inc. NetWare operating platforms. Its products include the FastBack backup utility and the Untouchable antivirus software.

Taylor would not comment on specifics. Bellue, however, will stay on report to Symantec President Gordon E. Eubanks Jr. while Fifth Generation is absorbed into the Peter Norton Computing Group.

Taylor noted that the two companies will focus much of their energy on delivering network-based utilities.

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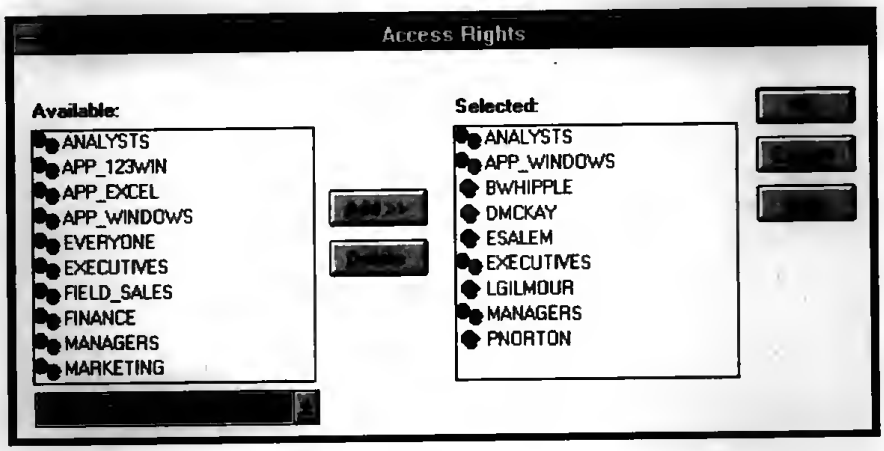

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Frame lures word processing users

By Michael Vizard
SAN JOSE, CALIF

Looking to shore up its ongoing campaign to entice word processing users to move over to an integrated desktop publishing package, Frame Technology Corp. last week released Version 4.0 of its FrameMaker software.

For the past two years, Frame Technology has been positioning FrameMaker, which bundles a word processor with a desktop publishing software package, as an offering that already provides the desktop publishing features suppliers of word processing packages have been gradually adding to their wares.

In the new release, the company said, it has enhanced FrameMaker with 100 new or updated features, including an improved automated page layout facility and more easily defined hypertext links. Also included is a facility that provides a detailed comparison of two versions of a document and an application programming interface that allows customers to link custom applications with FrameMaker.

"FrameMaker gives us the ease of use of a word processor and the technical strengths of a document publishing package," said Francois Belanger, director of electronic publishing at GDC et Associes in Montreal, which translates textbooks from English into French.

In contrast, he said word processing packages are not robust enough to handle large documents, while high-end document publishing packages take up too much space on desktop systems.

According to Belanger, the most significant features in FrameMaker are an underlying programming language that allows him to save file descriptions, the ability to change portions of a document and then have that document automatically reformatted and an indexing and table of contents facility that is automatically linked to specific areas of text.

FrameMaker runs on Windows, Macintosh and Unix platforms. Pricing starts at $895.

Briefs

A Watermark decision

Document imaging vendor Watermark Software, Inc. has entered into a distribution agreement with Law Cypress, which will immediately begin selling Watermark's Discovery Edition product. The Discovery Edition is a Windows-based application that embeds document image objects into any Object Linking and Embedding-compliant Windows application. The two firms also plan to educate and train value-added resellers about Watermark's product line and develop bundled programs.

CDS to sell Acer prods

Control Data Systems, Inc. has signed a one-year agreement to sell Acer America Corp.'s PCs and network servers as part of its systems integration business.

Battery charge

AER Energy Resources, Inc. last week licensed Westinghouse Electric Corp.'s cathode technology, which AER Energy hopes to use to build longer-running rechargeable batteries for portable notebook and pen computers.

Jeppesen goes electronic

Jeppesen Sanderson, a subsidiary of The Times Mirror Co. that publishes navigation charts for the airline industry, has adopted the DynaText electronic delivery system from Electronic Book Technologies, Inc.

SHORT TAKES NCR Corp. said it would sell its PCs through direct mail.... Corel Corp. has launched its fifth annual $1 million CorelDraw World Design Contest

Client servers, giant servers and mainframes alike will all accommodate a data warehouse, given the right software. That's where Bill Inmon comes in.

Bill created PRISM Warehouse Manager™, a data warehouse automation tool that's proving indispensable to high-level decision makers. Now he's taken Warehouse Manager one step further, making it fully compatible with IBM, HP, DEC, NCR and most other servers running Oracle, Sybase, DB2 and RedBrick databases.

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Building a data warehouse will take longer than you can afford to wait, unless you use Bill's shortcut. Since Warehouse Manager is fully automated, you won't waste time writing code by hand or learning new languages. And with your staff spending more time analyzing information, and less time searching for it, your productivity can increase tenfold or more.

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Carole Patton

Killer apps a rare breed

The PC world is bulging with Windows apps that aspire to be "killers," but only a handful are destined for greatness.

One of those few that seem marked for success is Replica from Farallon Computing, Inc. in Alameda, Calif. Replica creates a TrueType document, including all fonts. The idea here is solid. You create one file (an RPL file) and send it. Then, whether the recipient has a Macintosh or a PC, he can open this file with a reader, view it and print it. It's a universal format that circumvents one of today's biggest problems: distribution.

Replica costs $79. The reader software is provided free to any and all recipients requiring it, which gives the product a big leg up on Adobe's Acrobat, which charges $50 for its Viewer software ($19 for volume orders).

Another of Replica's appealing features is that there's no learning curve. If you can print from Windows, you already know how to use Replica. Like the current crop of fax software, Farallon has set up Replica's interface to look like another printer driver. In fact, you create a Replica document without even starting the program. You use it from your word processor by going to the printer setup.

The only "gotcha" is that Farallon decided to use its own printer technology rather than Windows drivers. As a result, the print quality isn't quite as good and documents can change depending on the fonts chosen.

Another promising new product is E-Mail Connection from Connect Software, a division of the Redmond, Wash.-based contract programming firm Adonis, which was started by a group of ex-Microsoft programmers. They wrote this product because they were frustrated with the technical mumbo jumbo users needed to access E-mail services.

E-Mail Connection has a very simple setup. Users walk through, telling the program where they live (it knows what CompuServe access phone numbers are needed) and the speed of their modem (it sets the baud rate). However, if you think E-Mail Connection is a communications program, you're wrong. Actually, this is a smart front end for something every Windows user already has on his desktop: Windows Terminal.

E-Mail Connection has a built-in database for storing messages and folders you can name. Best of all, the rules for routing information are built-in. This means you can send an Internet message from a service such as CompuServe without having to remember a long, esoteric address. No other communications program does that.

A couple of cautions: This product is not a front end for CompuServe like TapSis is, and it doesn't handle message threads. Also, there is no way to import address lists. But for $99 (street price), this program is a breakthrough.

Finally, there is one product that raises the question of whether star quality is enough. Ecco, a personal information manager (PIM) from Arabesque Software, Inc. in Bellevue, Wash., is an excellent package that may have missed its big moment. What Arabesque did with Ecco is clever. It combined two ways of looking at information — a spreadsheet view and a database view — and created a PIM that also includes an outliner. The product is still selling for the introductory price of $99.

The only problem is that corporate purchasers tend to be heavily networked, and network vendors are building PIMs right into their E-mail. Lotus' CC:Mail just added The Organizer, a very nice PIM. WordPerfect Office already has a great little to-do list and a calendar built-in and seamlessly integrated. And Microsoft has Scheduler, which could be interesting with a little work.

My guess is that stand-alone PIMs will sell to the corporate market only if they include special-interest extras such as time and billing or contact management.

Patton is president of the Mendham Technology Group in Mendham, N.J., which produces Client/Server Summits for corporate strategists. Her MCI Mail address is 401-4869.

CHOOSING THE WORLD'S BIGGEST DATABASE COMPANY MAY SEEM SAFE.

Symantec Corp. has introduced Version 4.0 of its Q & A for Windows database software.

According to the Cupertino, Calif., company, the product features a fully integrated word processor, a familiar spreadsheet view and a built-in personal assistant called "Do Anything Very Easily."

Q & A for Windows allows users to create graphical forms of their data and is fully interoperable with Q & A for DOS.

An IBM PC or a 100%-compatible PC running Windows 3.1 or higher in enhanced mode is required.

Q & A for Windows costs $249.95.

▶ *Symantec*
(408) 253-9600

Claris Corp. has announced FileMaker Pro 2.1 for Windows and Macintosh, an end-user, cross-platform database.

Expanded peer-to-peer networking support and productivity enhancements have been included in the offering.

FileMaker Pro 2.1 supports the standard NetBIOS application programming interface and is compatible with Novell, Inc.'s NetWare, Microsoft Corp.'s Windows for Workgroups and LAN Manager, Banyan System, Inc.'s Vines and Artisoft, Inc.'s LANtastic networks.

According to the Santa Clara, Calif.-based company, support is provided for Novell's MacIPX, a tool that offers streamlined peer-to-peer integration between FileMaker Pro 2.1 Windows and Macintosh users without needing any special configuration of server-based data files and applications.

FileMaker Pro 2.1 for Windows costs $129 through January 1994. FileMaker Pro 2.1 for Macintosh costs $399.

▶ *Claris*
(408) 987-7000

Pacific Crest Technologies, Inc. has introduced CardGrabber, a business card scanner system designed for Windows-based PCs.

The product unites a compact scanner with an address book for Windows software that organizes, files, stores, retrieves and prints business card images and data.

By using optical character recognition, images from a business card are converted into computer text and stored.

According to the Newport Beach, Calif., company, built-in artificial intelligence software searches for data such as company name, address and telephone and fax numbers and automatically puts the information into the corresponding database field.

CardGrabber costs $395.

▶ *Pacific Crest Technologies*
(714) 261-6444

Kensington Microware Ltd. has introduced Expert Mouse 4.0, a programmable trackball for IBM PCs, PS/2s and compatible computers.

According to the San Mateo, Calif., firm, the product features advances in software that include slow cursor technology, programmable mouse commands, custom acceleration and application sets.

Expert Mouse 4.0 is available in a serial version for $149.95 and a bus version (includes serial card) for $179.95.

▶ *Kensington Microware*
(415) 572-2700

Product short

Cardinal Technologies, Inc. has introduced the Cardinal Sensory System I and the Cardinal Sensory System II multimedia kits. The products feature Cardinal's Digital Sound Pro 10 Soundcards, double-speed CD-ROM drives for faster data access and Windows/DOS multimedia presentation software. Cost: System I is $599; System II is $699. Cardinal Technologies, Lancaster, Pa. (717) 293-3000.

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David Coursey

Charges will limit NT trials

Microsoft's new paid support programs should have them cheering in Provo. That's because support for a single $495 (list) copy of Windows NT costs $7,500 per year or $150 per call. Which is a real kick in the teeth for those who'd like to do some tire-kicking of the Mother of All Operating Systems.

Of course, the support cost is the same whether you're using vanilla Windows NT or the $1,495 NT Advanced Server and whether you have one or 100 copies. Still, at a time when Microsoft ought to be calling its NT customers weekly just to spread good karma among the masses, this isn't a smart move. Anything that makes NT less attractive than NetWare is a case of Microsoft shooting itself in the foot.

Microsoft counters that Novell also charges $150 a call for support, but this overlooks all those Certified NetWare Engineers who have been trained over the years to make low or no-cost NetWare support fairly easy to come by.

Under pressure, Microsoft's original plan — to include 30 days of free installation support with copies of NT purchased before the end of the year — has been extended until next June. But that still isn't enough to help NT become a real competitor for NetWare, Unix and other network server architectures.

This is just a first level of fault-finding. Microsoft has created a support plan of almost biblical complexity (which befits the size of its

Coursey, *page 54*

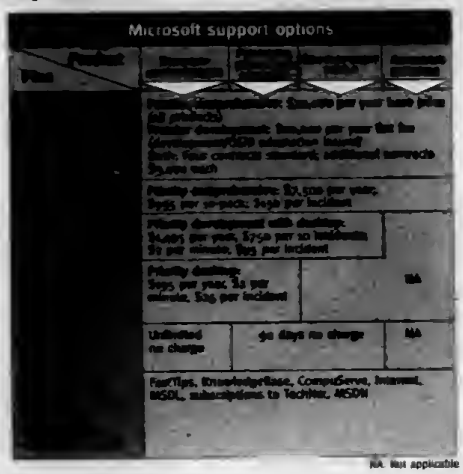
Support plan well-received

By Ed Scannell

Corporate information systems managers interviewed seemed to welcome Microsoft Corp.'s recently announced tiered technical support program, saying it offers more flexibility for users of products including Windows NT.

The Microsoft Support Network program, scheduled to go into effect Oct. 1, is the company's attempt to get away from the one-size-fits-all approach of previous support programs, according to some IS managers.

It is a necessary evolution, in their opinion, if the company is to entrench NT as a standard for the development of mission-critical client/server-based applications.



NA: Not applicable

Three levels

The program has three categories of support, with Premier Support — the highest level — aimed at Fortune 1,000 accounts and third-party developers.

Premier Support promises personalized technical support and 24-hours-a-day, seven-days-a-week priority access to Microsoft technicians.

Each corporate account is assigned a technical account manager who has detailed knowledge of that account's technical needs.

"We like this agreement because we are writing mission-critical applications that will run on PC networks," said Rob Hassell, general manager of MIS at Freightliner Corp. in Portland, Ore.

"What I think is unique about this program is I have a name to call who knows our suite of software and what we are doing. I don't know of any other program that has that," Hassell said.

There are two versions of Premier Support: Comprehensive Support, which assists Fortune 1,000, education and government accounts in system administration and in-house development; and Premier Development Support, which focuses more on commercial developers and OEM adaptation issues.

Both programs carry a base fee of $20,000 per year, which could go higher depending on the number of systems an account has.

The programs' price tags do not appear to be a deterrent to the IS managers interviewed.

"When you look at what we are paying for software and support across the board, $20,000 is a bargain. For us it is not even an issue," Hassell said.

"Pricing on their previous support was in the same ballpark. We need to investigate more the impact of what we must pay above the base charge of $20,000," said Scott Russell, a senior technical consultant at Georgia Pacific Corp. in Atlanta.

While Microsoft is charging for support at the highest levels of the program, company officials said they do not see support as a major profit center.

"We are not looking at this to be a profit center. In other words, we are not expecting to make back what it actually costs to run the business," said Deborah Willingham, Microsoft's general manager of product support services.

"We are focused on doing repeat business with customers with software products, not added services," Willingham said.

Spreading its wings

Microsoft will extend the program's reach through about 2,500 third parties called Solution Providers as well as through a new group located in Authorized Support Centers (ASC).

The ASCs will offer multivendor support, consulting services and advisory and diagnostic assistance. "Microsoft can't be the sole answer to people's support problems with so many customers mixing and matching third-party hardware and software," Willingham said.

"It also gives us more time to become a better friend to the channel," she added.

In addition to Premier Support, the Microsoft Support Network offers Standard Support, which gives desktop application users free telephone support from 6 a.m. to 6 p.m. Monday through Friday.

Users with personal operating systems, such as DOS 5.0, 6.0, Windows and Windows for Workgroups, get 90 days of no-charge telephone support.

Microsoft's Priority Support allows users of desktop applications and personal operating systems to choose among payment options. Users can pay $195 a year for unlimited priority access to technicians, $25 per incident using a credit card or $2 a minute over a 900 number with a $25 per incident cap.

Through June 1994, NT users will receive 30 days of free support.

Token Ring vendors change with the times

By Lynda Radosevich

Token Ring equipment vendors are aiming to split the market into two distinct segments, one for client workstations and one for servers. For instance, in June, IBM introduced separate versions of its LANStreamer Token Ring line targeted specifically for client or server workstations.

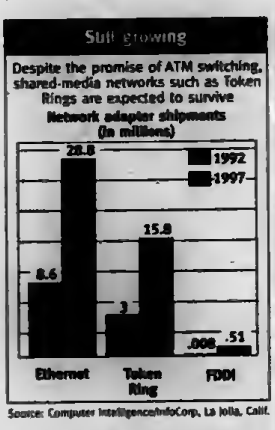
Now, Madge Networks, Inc. is delivering its Token Ring adapter line optimized and priced for client workstations.

The idea is to provide users with a higher-cost, higher-performance adapter suitable for servers running multitasking operating systems such as OS/2 and Microsoft Corp.'s Windows NT; and a lower-cost, lower-performance version suitable for client computers running single-tasking operating systems including DOS and Windows.

The Madge client adapter, called 16/4 ISA Client Ringnode, is a $560 card that has a programmed I/O method for transferring data between the adapter card and the host system.

"A lot of the tie-up on the network is the communication between the card and the node. Programmed I/O is increasing the speed between the card and the node," said Stan Schatt, director of LAN research at Computer Intelligence/InfoCorp in La Jolla,

Token Ring, *page 73*



Source: Computer Intelligence/InfoCorp, La Jolla, Calif.

Coursey

CONTINUED FROM PAGE 53

product line), and there's lots to pick on. But while Redmond's plan has problems, the Fortune 500 won't encounter them as quickly as smaller businesses.

If you're a big customer, a $20,000 check sent to Redmond each year will get you all the support you need, provided all that support can be delivered to only four of your employees. Each additional contact is $3,000. That money buys round-the-clock, year-round access to someone who is supposed to know how to solve the thorniest of Microsoft-related problems. If you can afford that, stop reading because it's the simplest of Microsoft's support options.

If you're on the other end of the scale, unlimited free support is available for desktop applications via phone (actually, it's a toll call) or various on-line or fax-back services. Purchasers of desktop operating systems and development tools get 90 days of free support, limited or not to installation questions, depending on who you talk to.

If you're the lucky buyer of an advanced system like a mail server or even the remote dial-up software that picks up your mail from the server, you'll pay from the moment the software is installed or whenever you decide to call, whichever is first. Windows NT is an advanced system, although I've already talked about the free "promotional support" Microsoft has decided to offer as an enticement.

If they want more service than Microsoft is willing to give, desktop application and personal operating system customers can sign up for a $195 annual support contract. The investment will get you 24-hour-a-day and weekend access over a toll-free line. Other options are $25 per incident on an 800 number or $2 per minute via a 900 number. (OEM versions of Microsoft apps and operating systems will continue to be supported by the OEMs.)

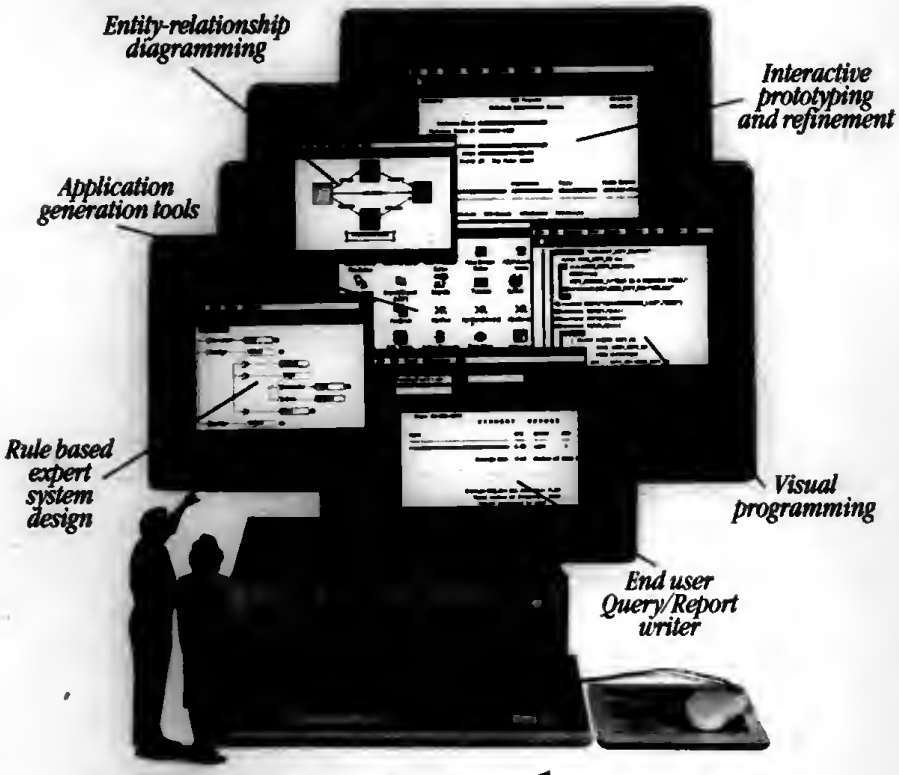
Developer support after the first 90 days is much like that for applications, except it costs a lot more — $1,495 a year, $95 an incident or $2 a minute. This includes all the development tools, with the exception of the forthcoming Visual Basic for Applications (different from the standard Visual Basic) and Microsoft's databases, Access and FoxBase, both of which are conveniently considered applications.

Considering Microsoft's roots as two guys with Basic, I would have expected some special support deal to help beginners learn to program.

Microsoft does deserve credit, though, for its willingness to get out in front on the issue of unbundling support from software. Over the next six months or so, you can expect all the major publishers to weigh in with paid support plans of their own. And shortly thereafter a wave of price cuts will probably come as software companies seek to use these programs for competitive advantage. If possible, customers should watch and wait until things shake out early next year.

Coursey is editor of "P.C. Letter," a San Mateo, Calif., industry newsletter. His MCI Mail address is 558-4460.

"Wow, that's what I call pushing the boundaries..."



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Motorola releases modular servers

TEMPE, ARIZ.

The Motorola Computer Group last week announced a family of systems and servers designed to provide snap-together modularity and expandability.

The company, based here, said the Series 900 computers allow a user to reconfigure or expand a system in minutes without tools or the need to change internal cabling, wiring or jumpers.

Based on the Motorola MC88110 Symmetric Superscalar RISC computer microprocessor, the Series 900 machines are intended for use as servers or as multiuser Unix systems supporting as many as 1,000 users.

The computers are sold in stackable modules that are plugged together to achieve various configurations.

Pricing for the CPU modules start at $4,200 for a 33-MHz CPU, while the VME bus-based expansion modules start at $1,600.

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intel inside

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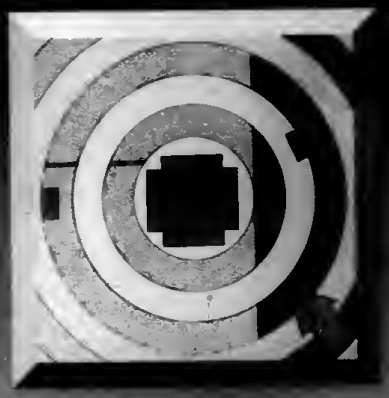

PowerPC:

The New Generation of Computing

"Eventually, the PowerPC will be an all-encompassing processor family. This family will be scalable to everything from embedded controllers in automobiles, to printers, to graphics coprocessors, to personal digital assistants to desktops, to supercomputers."

This White Paper was written by Jim Lardear, analyst, workstations, at Datapro Information Services Group, Delran, NJ. Datapro is a provider of objective and analytical information on computer, communications and office technology products and markets.

Introduction

During the late 1970s and early 1980s, the defining characteristic of the embryonic personal computer market was chaos. The market was populated by a host of proprietary fiefdoms and hindered by the lack of a unified direction. Several competing 8-bit microprocessors, including Motorola's 6800, Zilog's Z80, and Intel's 8080, were vying for leadership. The operating system market was less turbulent, with Digital Research's 8-bit CP/M sitting, at least momentarily, on top of the heap.

At that time, the market, in need of a catalyst, had failed to reach its full potential and PCs were considered little more than novelties. Then, everything changed. Into the void rode IBM. On August 12, 1981, IBM introduced its Personal Computer and brought the credibility of a corporate icon to a desktop computer market that was primed for explosive growth.

By virtue of IBM's strong reputation and presence in the corporate marketplace, the IBM PC became an instant de facto standard. In the process, IBM crowned Intel and Microsoft heirs apparent by basing its PC on the 8088 8-bit processor and the MS-DOS operating system.

With IBM's announcement that its PC architecture would be opened for development to third-party hardware and software vendors, the market rallied around a single hardware (8088) and software (MS-DOS) standard. This spawned the development of an aggressive clone market and the evolution of microcomputing as we know it today.

In the years since Intel's 8088 was thrust into this position of prominence, die (chip) sizes and prices decreased, while overall performance dramatically increased. As a result, the average consumer and price-sensitive corporate buyer can now access a wealth of floating-point and integer performance with inexpensive desktop and portable computers.

Today, the battle for control of the desktop is being waged primarily in two processor camps. On one side, there is the PowerPC from Motorola, IBM and Apple. On the other side, there is the Pentium from Intel. Both sides are feverishly working to generate the ground swell of support necessary for their platform to control the market now, and into the next century. That market will undoubtedly evolve to include other high-tech products that are currently in their early stages of development.

As Motorola, Intel and a host of rival RISC vendors take turns trying to pull the sword from the stone, there is an important caveat to consider. Leaders are crowned by the people — only in this case, they vote with dollars instead of ballots.

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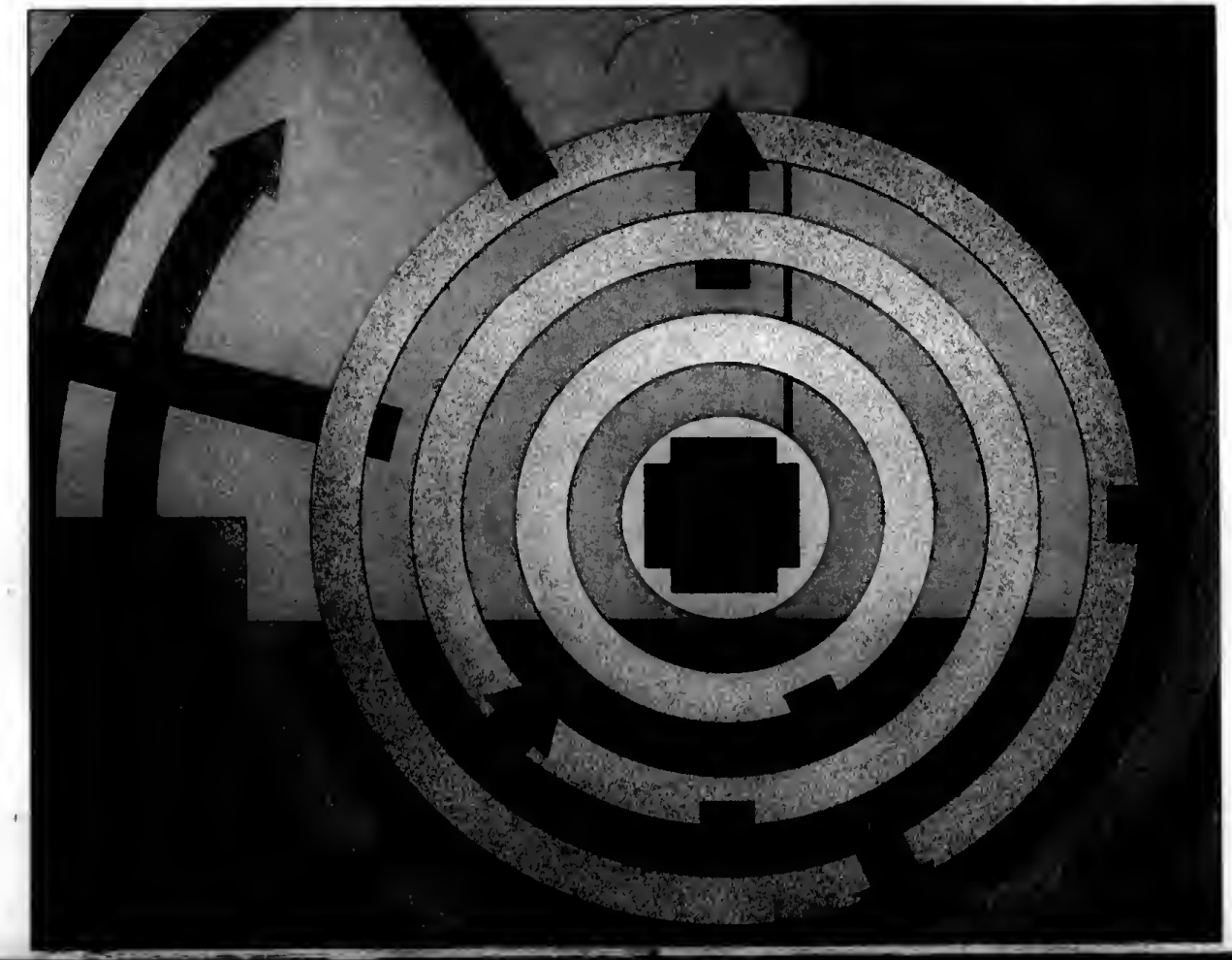


PowerPC: The New Generation of Computing

An epic American business battle is about to be joined. Its corporate combatants are inalterably opposed; there can be no retreat, no accommodation. They may both survive, but one will likely emerge triumphant and the other vanquished. It seems ironic that such a gargantuan battle is to be waged for control of the market for miniature microprocessors.

Motorola, IBM and Apple have aligned themselves behind the PowerPC. Intel will meet their thrust with the Pentium. PowerPC versus Pentium. Strength versus strength and no holds barred. Only the market, the great mitigator, can step between them.

This impending confrontation is a direct result of the market pressures and trends of the 1990s. Foremost among those trends are downsizing, compatibility, the graying of lines between PCs and workstations, and new 32-bit operating systems. Victory — in the form of processor market share — hinges on each vendor's unique ability to address user requirements in these key areas.

Downsizing from mainframe and midrange hosts forces systems in the lower end of the market to pick up the processing

slack. Since PowerPC, Pentium and other Reduced Instruction Set Computing (RISC) processors offer enough raw compute power to handle this task, the server market is sure to be hotly contested.

Historically, RISC vendors focused on the high-margin, low-volume technical and scientific markets. Until recently, they paid little attention to the commercial desktops dominated by Complex Instruction Set Computing (CISC) processors.

RISC vendors are aggressively pursuing the under-$5,000 desktop with workstations masquerading as PCs.

The high-volume commercial market is very attractive to RISC vendors who are now aggressively pursuing the under-$5,000 desktop with workstations masquerading as PCs. Their road to success is blocked by high-performance PCs from the incumbent CISC vendors and their decade of dominance over RISC processors. To compete in this commodity market, RISC vendors must rely on high volumes — not high mark-ups — to turn a profit.

Of all the 32-bit operating systems on the desktop today, RISC vendors see Windows NT as their best chance to wrest mainstream desktop market share away from Intel. The two leading PC manufacturers, Apple and IBM, have other operating systems and plans based on PowerPC. No matter which operating system eventually dominates the market, it will require increasingly faster processors to fully exploit it. Here, the PowerPC has a large advantage: processor-intensive applications such as graphics, multimedia and CAD/CAM currently running on CISC-based PCs will show the most improvement through its use.

For the most part, users are unwilling to move to a new environment at the risk of losing their existing investment in software, hardware, and training. Migration, as opposed to merely upgrading, is a complex, demanding process that can take lots of years and lots of aggravation. Today, Pentium is viewed as an upgrade — advantage Pentium — while the PowerPC is perceived as a migration. But within the year, this will cease to be an issue, and a significant Intel advantage will be checked.

No doubt, with PowerPC shipments initiated, the playing field with Intel will begin to level. Although currently available, the Pentium does not have the optimized software necessary for users to realize any performance benefits, and Intel expects to ship only about 100,000 of the chips in 1993. As a result, the Pentium will not have much of a lead by the time the first PowerPC systems hit the market in the third quarter of 1993.

WHERE THE INDUSTRY HAS BEEN
WHERE THE MARKET IS GOING

Processor	Intel 8086*	PowerPC 601
	1978	1993
Clock Frequency	16MHz	50MHz/66MHz
Transistors	29,000	2.8 million
Transistor Length	3 microns	0.65 microns
Bus Width	16-bit data	64-bit
Address Bus	20-bit (1MB)	32-bit (4GB)

*Intel's 8086 processor was used in the original IBM PC and PC/XT.

Source: Datapro

THE PowerPC ALLIANCE

In October 1991, three distinct and diverse companies with similar visions for the future formed an alliance to develop an open computing platform based on the PowerPC architecture. The Motorola, Apple and IBM alliance came together rather quickly at the Somerset Design Center in Austin, Texas. The center, which employs more than 300 engineers — mostly from Motorola and IBM — is aptly named because Somerset is the county in England where King Arthur's knights planned their strategies at the round table.

Motorola brings its manufacturing expertise to the table, and it will shoulder much of the marketing and manufacturing responsibilities in addition to the design. The firm will manufacture three members of the PowerPC family — the 603, 604, and 620 — at its new MOS11 submicron fabrication facility located close to Somerset.

Apple supplies strong third-party software support and, more importantly, its easy-to-use operating environment. IBM contributes advanced processor design, network connectivity technologies, third-party support and, despite its recent setbacks, the overall momentum of an industry leader.

IBM also recently formed the Power Personal Systems Division to exclusively sell PowerPC-based systems. These systems compete directly with IBM's own Intel-based sys-

tems, including ThinkPad notebooks, ValuePoints and PS/2s. The formation of this new division allows IBM to concentrate on either the PowerPC or Pentium without mixing support for the two.

THE PowerPC MICROPROCESSOR ARCHITECTURE

The PowerPC 601's aggressive development schedule was completed successfully due largely to the fact that it was based on IBM's predecessor single-chip POWER (Performance Optimization With Enhanced RISC) processor technology. The POWER architecture, in various implementations, currently drives IBM's RISC System/6000 POWERstation and POWERserver family as well as a similar line of systems from Bull HN. The name "PowerPC" reflects this heritage.

The most obvious difference between the superscaler PowerPC and its forbearer is the fact that it offers a more scaled-back instruction set. A superscaler architecture enables a processor to execute more than one instruction in parallel per clock cycle. Engineers from Motorola, IBM and Apple enhanced the POWER architecture to better meet the combined low-cost and high-performance goals of the alliance.

The alliance is also developing the PowerPC 601, 604 and 620 to include multiprocessing support missing from IBM's original POWER architecture. Both SunSoft's Solaris 2.0 and Windows NT are optimized for multiprocessing.

The programming model and instruction op-code assignments remain fully POWER compatible. Any missing features can still be trapped and emulated to support existing POWER binaries. This is an important consideration, since the PowerPC will be able to access over 4,000 IBM AIX applications upon its release.

The PowerPC's floating-point unit is supported directly in the instruction set architecture, resulting in a more tightly integrated system with improved floating-point performance. This is a significant improvement since the high-end graphics applications of the technical workstation market and other emerging applications, such as handwriting and voice recognition, require strong floating-point performance.

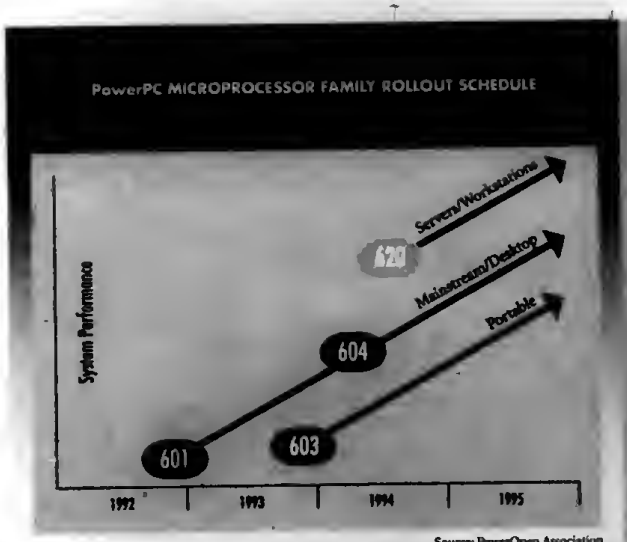
In keeping with the utilization of existing technologies, the PowerPC 601 bus interface unit (BIU) incorporates much of the technology used by Motorola's 88110 processor. The BIU currently supports a 32-bit address bus and a 64-bit data bus in the PowerPC 601.

The extension to 64 bits is new to the POWER architecture. The PowerPC architecture will offer a full 64-bit processor in the PowerPC 620. All PowerPC versions, including the 620, will provide backwards compatibility to existing PowerPC-compatible 32-bit software applications.

Because they are so advanced, members of the PowerPC family are faster than the buses that support them. However, an on-chip clock divider provides easy interfacing to standard buses. Those buses include ISA, EISA and MCA. MCA and EISA run at just under 32MHz, while the PowerPC 601 runs at either 50MHz or 66MHz. Other key system components such as 32-bit operating systems with graphical user interfaces, multimedia, high-end graphics, networking and SCSI-2 disk drives are also handicapped by the slower bus speeds.

The PowerPC will be able to access over 4,000 IBM AIX applications upon its release.

Because a system is only as fast as its slowest component, the PowerPC is designed to be bus-independent. It supports all industry-standard bus designs, including Intel's emerg-



Source: PowerOpen Association

Simultaneous development work is being conducted on the 603, 604 and 620 microprocessors.

ing Peripheral Chip Interconnect (PCI) local bus. Since the local bus connects directly to the processor, it will speed up networking applications, graphics accelerators and hard disk controllers. Support for PCI will not only speed up important subsystems, it will also help to keep the PowerPC in step witb Intel on the desktop.

The PowerPC family will be scalable to everything from embedded controllers in automobiles to personal digital assistants.

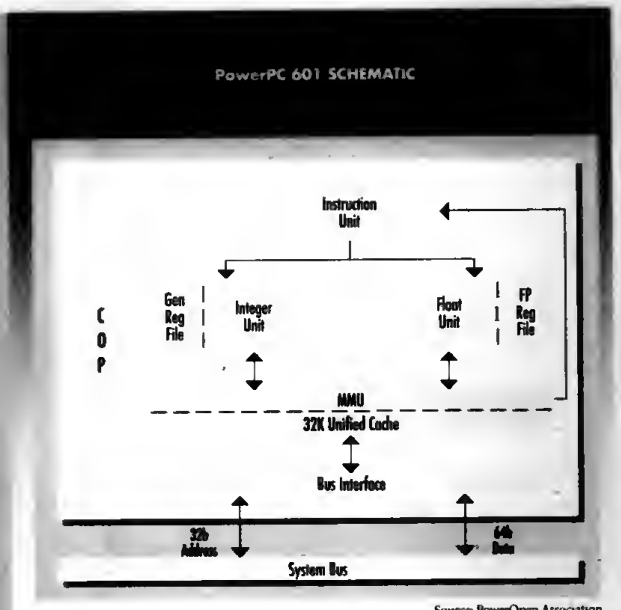
ALL IN THE PowerPC FAMILY

In April 1993, Motorola's RISC Microprocessor Division began sample shipments of the first member of its PowerPC family, the 601. While the PowerPC 601 is being sampled by Motorola and IBM, the Somerset design center is working simultaneously on the 603, 604, and 620, all of which are targeted at specific market segments and will be available within the next 18 months.

Eventually, the PowerPC will be an all-encompassing processor family. This family will be scalable to everything from embedded controllers in automobiles, to printers, to graphics coprocessors, to personal digital assistants (PDAs) to desktops, to supercomputers.

The PowerPC 601

Although the superscaler PowerPC 601 is specifically optimized for use in low-range to medium-range desktop systems, it also supports high-end symmetric multiprocessing features. It is available with clock rates of either 50MHz or 66MHz, and includes a 32K byte on-chip cache.



Source: PowerOpen Association

The PowerPC 601 offers 50MHz and 66MHz speeds.

The PowerPC 603

The next product family to be introduced will be the PowerPC 603. This chip will carry a lower price tag, while maintaining similar performance levels to those of the PowerPC 601. Particular 603 strengths include low power consumption and a power-down mode, as it is targeted for use in notebooks and low-cost desktops.

The PowerPC 603 will also offer innovative power management features to further distance itself from the competition in battery-powered markets.

Intel's Pentium is too large, uses too much power, and runs too hot to offer any challenge to the PowerPC 603 in this market.

The PowerPC 604

The PowerPC 604 is designed for high-performance PCs, workstations and servers, and graphics-intensive applications. It will compete against Intel's P6, This processor also supports symmetric multiprocessing and will offer two to three times the performance of the PowerPC 601.

The PowerPC 620

The PowerPC 620 will be a full 64-bit high-end processor for botb uniprocessor and multiprocessor workstations, servers and supercomputers. Performance is its major design emphasis. As a result it will offer four to six times the performance of the PowerPC 601. Projected performance figures from Motorola put the PowerPC 620 in the 200 to 400 SPECmark range. IBM will introduce AS/400s based on the PowerPC 620 sometime in 1995.

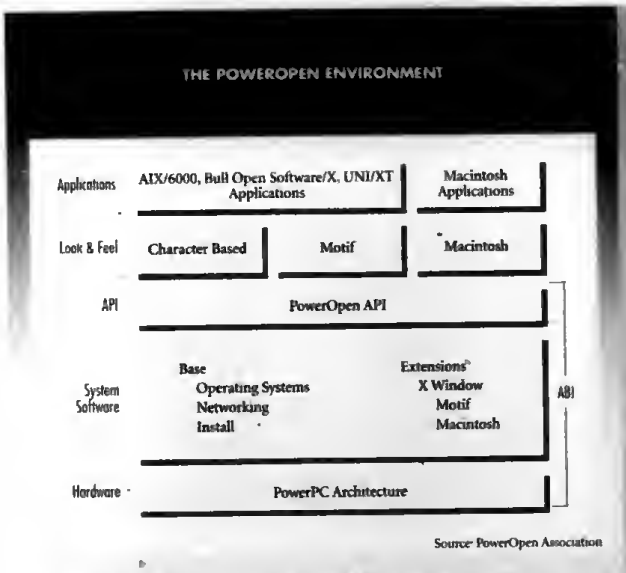
THE PowerPC 601 VERSUS INTEL'S PENTIUM

The battle lines have been drawn. The troika of Motorola, IBM and Apple has chosen to take the fight to the extremely lucrative desktop market dominated by Intel's processors. Once representing two separate

ends of the desktop computing spectrum, RISC and CISC vendors are now competing head to head. Since the traditional technical RISC market does not offer the high volumes long enjoyed by Intel in the commercial market, this move is simply a matter of survival for makers of RISC-based systems.

PowerPC 601-based machines will not be the first RISC systems to specifically target this end of the market. Sun Microsystems' SPARC-classic and Digital's DEC 3000 Model 300L AXP are already fishing in the waters below $5,000. Other vendors such as Hewlett-Packard are currently designing low-cost RISC-based workstations. All major RISC players realize the importance of hitting the lowest possible price points with the most feature-rich systems.

Designing competitive systems is not the problem. The problem is winning market share from the firmly entrenched Intel and getting ISVs to port their applications to these systems.



The PowerOpen environment consists of the combination of any binary-compatible PowerOpen multi-user, multi-tasking UNIX operating system and any PowerPC-based platform.

PENTIUM

Intel's Pentium, formally announced in March 1993, with actual system announcements in May of 1993, will be used primarily in servers and high-end microcomputers — at least until its price starts to fall and next-generation operating systems such as Microsoft's Windows NT, IBM's OS/2 and NeXT's NeXTstep gain in popularity.

Most of the first Pentium models hitting the streets will be based on existing systems and have Pentiums added via daughter or processor cards. The first Pentium-optimized systems will be from vendors such as ALR, Compaq, Hewlett-Packard, IBM and NCR — vendors who are technologically capable of designing systems that fully exploit the Pentium's potential and minimize its flaws.

Pentium is available in clock speeds of either 60MHz or 66MHz. The 66MHz version delivers performance levels of 112 MIPS, 64.5 SPECint92, and 56.9 SPECfp92. Pentium includes 3.1 million transistors and an integrated floating-point processor to deliver three to 10 times the performance of a 33MHz i486. And it is fully compatible with the existing library of Intel x86 software.

The major strengths behind Intel's Pentium are, paradoxically, both momentum and inertia. Momentum is a strength because users have been consistently moving from 8080 to i286, i286 to i386, and then i386 to i486 throughout their computing lives. The next rung on the performance ladder is the step from i486-based systems to those powered by the Pentium. And one day the Pentium will yield to the P6 and P7.

Inertia is a strength because Intel's x86 is the premier processor architecture in the mainstream computing market, with over 50,000 supported DOS/Windows software titles and an installed base of over one hundred million PCs. The commercial market has wholeheartedly embraced the Intel/DOS/Windows computing platform, and is likely to remain inert in that posture. Also, users are unwilling to risk their heavy investments in software for moves to emerging platforms.

The first Pentium-optimized systems will be from vendors such as ALR, Compaq, Hewlett-Packard, IBM and NCR.

However, this inertia will be less of an issue during upcoming months as Windows NT gains in popularity. Windows NT will be available on both Intel and RISC platforms, giving users access to a broader selection of processors while allowing them to remain in the comfortable Windows environment.

Superscaler Design

Both the PowerPC and Pentium

PowerPC Brokers Union of Rivals

A marriage of rivals that seemed destined for divorce court is, instead, moving harmoniously toward actual product fruition.

In May 1993, Apple Computer showed off a Macintosh based on the 66MHz PowerPC 601. Shipments of PowerPC-based Macintosh systems tentatively slated for January, 1994 — the 10th anniversary of the Macintosh — were postponed until March. Although disappointing, the delay will not prevent systems from shipping during the first half of 1994, as promised by Apple.

The eventual release of PowerPC-based Macintosh systems will herald a new dawn for Apple, as it begins its publicly committed transition from CISC-based to more powerful RISC-based computers.

Apple Chairman John Scully predicts there will be shipments of over 1 million PowerPC-based Macintosh systems in 1994. More realistic figures come in at about half that number. Either way, the numbers still compare quite favorably with an estimated 250,000 shipments of Intel Pentium-based systems for the same period.

Apple has not made any announcements regarding the use of the Motorola 68060 and upcoming models. This is consistent with Apple's transition from the 680X0 architecture to a Macintosh line based only on the RISC architecture.

By mid-1994, Apple could be offering a complete line of notebooks, entry-level desktops, and high-end multiprocessing RISC-based systems. But 680X0-based systems will continue to be the base system for the next several years during the RISC conversion.

The PowerPC's performance is enhanced by the larger 32K byte unified on-chip cache and 64-bit data bus, compared with only 4K byte data and 4K byte instruction cache, and 32-bit data bus on the 68040. Both processors also include the added benefits of an integrated floating-point unit.

The PowerPC will run Apple's System 7 operating system and existing Macintosh software in emulation. On the down side, performance gains for PowerPC-based systems running traditional Macintosh software in emulation mode will be negligible.

PowerPC systems will need to run native mode software if they are to provide any real-world performance increases over existing 68040-based systems. Performance gains are also necessary to justify the purchase of a PowerPC-based system. Consequently, the Macintosh operating system will be gradually converted to native PowerPC code. This will allow RISC-based Macintosh systems to get faster as Apple releases new system software.

Two other operating systems — PowerOpen's version of UNIX and Taligent's object-oriented offering — have also emerged from the Apple-IBM alliance. With three operating systems to choose from, users will be able to meet the requirements of a variety of applications.

Despite the general animosity created by their competitive GUI offerings and the spate of courtroom battles, Apple and Microsoft are co-dependent. Apple needs native applications to realize the full potential of the PowerPC. Toward that end, Microsoft is expected to release native versions of Word and Excel to coincide with the first-half 1994 release of PowerPC-based Macs.

For Microsoft it all boils down to the bottom line. During 1992, analysts estimated that Microsoft earned upwards of $270 million dollars in revenue on worldwide sales of Macintosh software.

As if the picture was not bright enough, Sun Microsystems' SunSoft subsidiary announced a version of its UNIX-based Solaris operating system for use on Apple's PowerPC-based Macs.

The endorsement from RISC-workstation leader Sun is significant for many reasons. First, it levels the playing field against Intel's i486 and Pentium since SunSoft has already released a version of Solaris for use on this platform. Second, and most importantly, Solaris, via SunSelect's Windows Applications Binary Interface (WABI) technology, will provide access to the massive Microsoft Windows applications library.

Apple's success will hinge both on maintaining compatibility with the existing installed Macintosh base of 4.5 million and the availability of PowerPC-optimized software. Apple already has the support of a number of leading software developers who offer versions of existing applications for PowerPC-based Macintosh systems.

Ever since Apple, IBM and Motorola formed their alliance, people have expected something big.

Well, it's not so big, but it's amazingly powerful.

	Intel Pentium	PowerPC 601™
Frequency (MHz)	60	66
SPECint92	64.5	>60
SPECfp92	56.9	>80
Power (worst-case)	16W	8W
Die Size (mm²)	262	120

Introducing the PowerPC™ family of microprocessors from Motorola.

How powerful is our first tangible result of the Apple®, IBM®, Motorola alliance? Unlike any other microprocessor, PowerPC Microprocessors have the power to change the course of computing.

The PowerPC family of microprocessors will bring unprecedented high performance to everything from handheld computers to desktop computers to supercomputers. It will run circles around its only real competitor, the Intel® Pentium™ microprocessor, and it will do so at a fraction of the cost. It will run today's standard computer operating systems, as well as those that are

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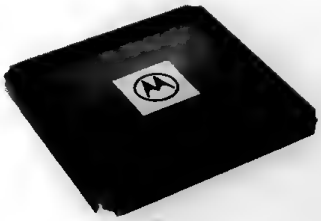

(actual size)

being developed for pen-based and object-oriented computing. In fact, PowerPC Microprocessors will play a pivotal role in the imminent convergence of computing, communications and lifestyle products.

To take a closer look at the future of computing, call Motorola today at 1-800-845-MOTO. We'll be happy to provide you with more information, including our free PowerPC Information Pack.

And we'll show you the microprocessors that are changing the course of computing.

The PowerPC Microprocessors from Motorola.

PowerPC Microprocessors. *Changing the course of computing. For the better.*

MOTOROLA

Pentium as announced by Intel, and Motorola's announced projected performance of the 66MHz version of the MPC601. Thermal comparison is based upon preliminary Intel specification for the 66MHz Pentium, and the performance of samples of the 66MHz version of the MPC601.

are based on superscaler architectures. The PowerPC 601 has three pipelined execution units capable of issuing and retiring three 32-bit instructions per clock cycle. These instructions include one integer, one floating-point, and a branch processing unit which can be either integer or floating-point.

Pentium's floating-point processor, a redesigned version of that found in the i486, is still much slower than the PowerPC 601's.

Each of Pentium's two instruction pipelines includes an arithmetic logic unit, address-generation circuitry and data-cache interface. The Pentium's dual pipelines can only process two integer or one floating-point instruction per clock cycle. This two-to-three difference in instructions per clock cycle represents a definite performance advantage for the PowerPC 601.

Performance Enhancement Through On-Chip Cache

Although both the PowerPC and Pentium include an on-chip cache, the Pentium's 8K byte data and 8K byte instruction cache is only half of that offered by the PowerPC 601's 32K byte, eight-way, set-associative, physically-addressed unified cache. On-chip cache memory acts as a buffer for instructions and data that can be accessed at high speeds to avoid loading another segment from the slower main memory. A larger cache translates into a smaller wait state, which improves overall processor performance.

Floating-Point Performance

The Pentium's floating-point processor, a redesigned version of that found in the i486, is still much slower than the PowerPC 601's. Its eight-stage pipeline can execute only one floating-point operation per clock cycle. The Pentium's 56.9 SPECfp92 is almost 40% slower than the 81 SPECint92 found on the PowerPC 601.

Strong floating-point performance is critical to both traditional technical applications and emerging technologies such as real-time video processing and voice and handwriting recognition.

Manufacturing and Chip Design

Two of the most important issues concerning microprocessor price/performance are chip technology and the manufacturing process. The PowerPC 601 utilizes a smaller die size and a reduced number of transistors to lower costs and help undercut Pentium's pricing structure. The PowerPC 601's die size is 118.81 squared millimeters, while the Pentium's is a relatively mammoth 262.44 squared millimeters.

Since the PowerPC is half the size of the Pentium, it maintains roughly a two-to-one manufacturing advantage. This disparity helps to keep costs down and allows the PowerPC to be priced at about half that of the Pentium.

The PowerPC is based on a .65 micron complementary metal oxide semiconductor (CMOS) technology, while Intel's Pentium uses .8 micron BiCMOS (a combination of bipolar logic and CMOS) technology. The PowerPC 601 has four levels of metal wiring compared with three on the Pentium. The difference in technology favors Motorola's PowerPC for a number of reasons:

The Heat Is On

With heat dissipation at 15 to 16 watts, Intel is having problems with the 66MHz Pentium's operating temperatures. This does not even take into account the heat generated by neighboring high-speed electronics such as video cards and disk drives. Heat sinks and dedicated fans provide a workable solution, but in the Pentium's targeted role as a server, it might not be enough. Server functions tend to be more processor-intensive and mission-critical than those of typical desktop applications.

As a result, 66MHz Pentiums might not ship in 1993, and some systems previously marketed as Pentium upgradable may not be. Vendors must now verify that systems will actually accommodate the Pentium. Reliability concerns raised by

COMPARING THE PowerPC WITH PENTIUM

	66MHz PowerPC 601	66MHz Pentium
Clock Rate	66MHz	66MHz
SPECint92	60	64.5
SPECfp92	81	56.9
Transistors	2.8 million	3.1 million
Die Size (mm)	10.9 x 10.9	16.6 x 17.6
Heat Dissipation	8.5 watts	16 watts
Volume Price (Qty. 1,000)	$450	$965

Source: Dataquest

Smaller die size, lower heat dissipation and less than half the price make the PowerPC a powerful alternative to Intel's Pentium.

the chip running too hot will undoubtedly delay the Pentium's implementation. However, Intel will soon find a solution to this problem.

Price/Performance

Motorola is aggressively pricing the PowerPC 601 to undercut the Pentium. At about half the size of the Pentium, the 66MHz PowerPC 601 is priced at $450 ($374 in quantities of 20,000), which translates into about 12.77 SPECint92 and 17.23 SPECfp92 per dollar. By way of contrast, the 66MHz Pentium is priced at $965 in quantities of 1,000 and offers only a meager 8.10 SPECint92 and 7.11 SPECfp92 per dollar.

These figures give Motorola and the PowerPC a significant price/performance advantage. Clearly, if the quest for supremacy boiled down to only price/performance, the PowerPC would be the runaway winner.

No other RISC vendor is offering these levels of performance at this price point. But in many environments, this might not be enough. Companies cannot change their technological direction in midstream. They usually continue to stick with their commitments to previously installed technologies.

Competitive Summary

In general, Pentium's impact will be minimal during the remainder of 1993. Its price will be too high, and its supplies too low for it to grab a big competitive lead. Most microcomputer buyers will find that Intel's i486 processor family can still meet their price/performance requirements. This is especially true since most of the available Pentium systems will not be "new" Pentium-optimized designs.

Availability of the PowerPC 601 is expected as early as September 1993 with RISC System/6000 Powerstation 220s from IBM. Apple will follow shortly thereafter with PowerPC-based Macs in early 1994 (see sidebar). Pentium's early lead will shrink as IBM and Apple boost the PowerPC.

Intel shipped over 32 million CISC processors during 1992, while RISC vendors shipped only 500,000 chips. This fact, coupled with Pentium's access to millions of installed users, and a vast, albeit unoptimized, library of software, is critical to winning "mind share" on desktop processors.

But the PowerPC also has competitive advantages. One is its support of new 32-bit operating systems, such as Windows NT, OS/2 and Solaris. Another is its access to the vast Windows application base via Insignia Solutions' SoftPC.

The manufacturing and chip design technology definitely favor the PowerPC in terms of price/performance. Motorola will push this advantage further with the addition of the 603, 604, and 620 in 1994. The battle is just beginning.

METAMORPHOSIS OF COMPUTING

The digital revolution will meld computers, communications and consumer technologies into products destined to become an indispensable part of everyday life.

Elements of this technology already exist. Other elements, such as application-specific software, faster buses, broader bandwidths and the necessary peripherals, are on their way.

Motorola and the PowerPC family will play an increasingly important role in this revolution, especially in the merging of computer and communications technologies. As smaller, more powerful computers are integrated with cellular communications technology, the concept of the mobile office will become an efficient and workable solution.

SUMMARY

Intel, the computing world's crowned king, has ruled the market for the past decade. But now Motorola's PowerPC is at the royal drawbridge. One day soon, systems based on both PowerPC and Pentium will be shipping and battling head to head. A few other RISC vendors will also join the fray. In this heated environment, the competition for market dominance will be intense. Price/performance leadership will be measured in months or even weeks, not years.

The PowerPC architecture and PowerOpen software are in the technological vanguard. Unlike Intel, which ruled by default, the PowerPC will be popularly elected by a grass roots movement of users, ISVs, and OEMs. It will then lead computing into its next millennium. ■

Source: Datapro

PowerPC:

The New Generation of Computing

Wang imaging app to run on Sun server

By Craig Stedman
LOWELL, MASS

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"They've developed a lot of products in the lab, but they're still trying to roll them out," noted Bruce Silver, a vice president at BIS Strategic Decisions, a consulting and market research firm in Norwell, Mass. "That business is very small right now, and they need to build it up," he said.

"Wang needs to talk less and do more," added Priscilla Emery, an analyst at New Science Associates, Inc. in Southport, Conn. Open/workflow in particular "is dragging along a bit," she said. Both Emery and Silver noted that the Sun port for Open/image would be a positive step for the company.

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Storage format made more open

By Stephen P. Klett Jr.
RESEARCH TRIANGLE PARK, N.C.

Users have been slow to accept hierarchical storage management (HSM) technology because of its proprietary nature. Alphatronix, Inc. last week unveiled an "open" HSM system called Emissary/HSM aimed at reversing this trend and winning cautious users' hearts and wallets.

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Emissary also uses the host machine's native storage device driver rather than a proprietary third-party driver. As a result, Ritchie said, data can be accessed without the Emissary software, removable media are portable to third-party drives, the system works with any backup software, and it can be installed without reformatting the network's hard drives.

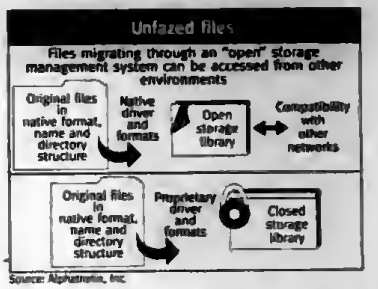
HSM systems automatically migrate files from network hard drives to optical libraries and then tape libraries, using parameters set by the systems administrator. Files that are accessed infrequently — up to 80% of files on the network, according to analysts — are moved to more cost-effective storage media, freeing expensive hard disk space for more frequently used data. Migrated files are automatically and transparently restored to the hard disk when needed.

While the initial release of Emissary/HSM is not a true HSM system because it does not support tape libraries, it is the first system on the market to use a nonproprietary data format. Tape support is slated for the fourth quarter, Ritchie said. Currently, Emissary supports only magnetic and optical storage media.

Industry analysts said Emissary is an attractive, viable alternative to proprietary systems that will help speed industry acceptance of HSM technology.

"Emissary/HSM's open architecture will allow companies to start using hierarchical storage without redesigning their whole backup process," said Michael Peterson, president of Peripheral Strategies, Inc., a market research firm in Santa Barbara, Calif.

However, Peterson added that users have a risk/performance trade-off to consider when choosing an HSM system. "It is easier to retrieve data from an open HSM system if something goes wrong, but generally files can be recalled faster on a proprietary system." However, he said those users on the fence would be inclined to go with the open solution because it is safer.



Source: Alphatronix, Inc.

Emissary/HSM is available now starting at $4,800 for 20G bytes of secondary storage. The purchase of a $1,200 unlimited client license is also required.

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Token Ring

CONTINUED FROM PAGE 53

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"Access to the server is differentiating itself because it has a need for increased speeds. The server version runs at wire-line speeds because the server cannot afford degradation," Dzubeck added.

Sales still growing

Despite competition due to improved technology and dropping prices from non-Token Ring network protocols such as Ethernet, "fast" Ethernet, Fiber Distributed Data Interface (FDDI) and Asynchronous Transfer Mode (ATM), Token Ring sales continue to grow, Schatt said. That is mostly because Token Ring is seeded in the largest firms in the country, many of which are expanding their networks.

"They are not throwing away their Token Rings," Schatt said.

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"The need for more bandwidth is not synonymous with multimedia. ATM is synonymous with multimedia," said Frank Dzubeck, president of Communications Network Architects. Furthermore, ATM's "five-year cycle" or period of mass acceptance will not really begin until sometime between 1996 and 1998, he said.

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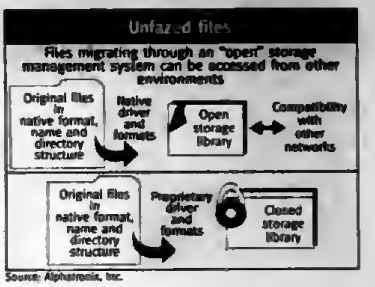

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Unisys seeks consistency with client/server unit

By Thomas Hoffman
SAN JOSE, CALIF.

Unisys Corp. recently laid out its strategy for the client/server business unit it created as part of its corporate restructuring last month.

Unisys executives and analysts said the unit should provide customers with a more cohesive approach to dealing with the vendor for its range of U6000 Unix servers, CTOS workstations, PW2 Advantage and Advantage Plus PCs and the related software and services Unisys provides to support Microsoft Corp.'s Windows NT operating system.

The Unisys Client/Server Systems business unit will operate like an independent company but will be able to draw on Unisys' corporate services and technologies to satisfy customer needs.

The unit will be headed up by Donald E. Coleman, who was president and managing director of Ventana Corp., a Tucson, Ariz.-based electronic meeting software developer, before he joined Unisys last March.

"If you're looking at us from the outside, two attributes will change," Coleman said. In the past, Unisys maintained separate divisions that focused on specific products, such as the U6000 servers. For each division, there was also a standalone, product-oriented research and development team, manufacturing and marketing groups and geographically based sales organizations.

Those once product-oriented divisions will now work together as a unified team of 2,500 staffers, Coleman said, starting with a marketing approach aimed at satisfying Unisys' four primary lines of business: financial services, telecommunications, airlines and the public sector. Those sectors provided the vendor with 80% of its $8.4 billion in revenue last year.

In 1992, Unisys' client/server hardware, software and services revenues totaled $1.5 billion, Coleman said. He estimated those revenues would approach the $2 billion mark for 1993.

Coordinated products

Unisys' "client/server approach is coordinated now," noted Rich Schreiber, president of ATB Associates, a Wellesley, Mass.-based consultancy. Schreiber said the strategy will enable Unisys to deliver to its customers a set of "solutions" rather than a set of products.

Schreiber said customers should benefit from the new unit by its more consistent set of products and services. Services are becoming increasingly important for user shops as they wade through their initial client/server efforts, Schreiber said.

"The reality is that if you're going to be putting in a new distributed system, unless it is a pilot, the requirement for the level of end-user sophistication generally begins to spiral upward more than most organizations are budgeted or staffed for," Schreiber said.

RemoteWare and the SEMINAR missed

AT THE VERY MOMENT AN EXPERT WAS EXPLAINING THE COST- AND SANITY-SAVING BENEFITS OF REMOTEWARE-CREATED AUTOMATED WORKFLOW SYSTEMS TO A ROOMFUL OF HIS FELLOW CLIENT/SERVER AFICIONADOS, was sitting in a tiny center seat, in coach, staring blankly at a fly nimbly exploring the OXYGEN PANEL above him. It had come down to a scheduling conflict. One more FREE product seminar, half-day, inevitably had deli sandwiches... potato chips that had gotten too close to the kosher dills and gone soggy. Or this junket to clean up yet another set of branch communication difficulties in Opelika, St. Louis, and San Antone. So the picture of this fly on the ceiling RUBBING ITS FRONT LEGS TOGETHER with an ominous delight didn't have the significance for him it might have had he seen that MEANWHILE, BACK AT THE SEMINAR THE REMOTEWARE FOLKS WERE SPINNING COLORFUL TALES OF SUCCESSFULLY-IMPLEMENTED FIELD COMMUNICATIONS SYSTEMS, HOLDING CHARLIE'S TECHNO-PEERS FROM COMPETING COMPANIES CAPTIVE WITH THE PROMISE OF THOUSANDS OF FULLY-AUTOMATED, EASY-TO-MANAGE AND UNATTENDED DIAL-UP COMM SESSIONS, AND RIVETING ACCOUNTS OF REAL COMPANIES WITH HUNDREDS OF MOBILE CORPORATE LAPTOPS AND REMOTE BRANCH OFFICES USING CENTRALLY-CREATED AND MANAGED ELECTRONIC FORMS, DOCUMENTS, AND REPORTS, ALL LINKED TO CENTRAL SYSTEMS AND DATABASES, AND ALL NEATLY SUPPORTED BY INTEGRAL ELECTRONIC SOFTWARE DISTRIBUTION CAPABILITIES! So these were the things Charlie was missing: solutions to the very problems that had made this one more night away from home a necessity. That, and what actually turned out to be a delicious RemoteWare lunch of pasta salad, FRENCH BAGUETTES with prosciutto and mozzarella, and fresh strawberries.

But what did he know? He was headed to lunch with the fellas in San Antone. For had deli sandwiches. And SOGGY CHIPS.

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Briefs

Support from IBM

IBM recently said it will boost the level of system integration and support it supplies to value-added resellers of its RS/6000 Unix systems. The IBM RISC System/6000 Express Support program provides 800-number technical support, custom configuration of systems and on-line access to IBM's product and support databases. The program will begin Oct. 1, IBM said.

Porting to Unix

Palindrome Corp. and Lachman Technology, Inc. announced plans to port Palindrome's Network Archivist automated backup software to Unix platforms. The initial release is to be for Sun Microsystems, Inc.'s Solaris in mid-1994.

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Epoch Systems in Westboro, Mass., has announced EpochServ 6.0, a family of integrated client/server data management software products that were designed for backup, file migration and volume management.

Key enhancements to the product line include the ability of files to span optical volumes, support for multilevel staging and expanded peripheral support.

Epoch officials claim the products are open, modular and portable. There are three integrated software products: EpochServ, client/server management software that includes three modules to implement a complete enterprisewide data management solution on a single platform; EpochBackup, software that automatically backs up and restores client files located throughout the enterprise in heterogeneous environments to an EpochServ-based system; and EpochMigration, software that provides automated, enterprisewide migration of client files located in heterogeneous environments to an EpochServ-based system, according to the firm.

Pricing ranges between $20,000 and $60,000.

▶ *Epoch Systems*
(508) 836-4300

Advanced Archival Products, Inc. and **Cygnet Systems, Inc.** have announced the availability of the Amass optical-disc jukebox file system for the Cygnet Series 1800 expandable, 12-in. optical jukebox family.

According to Advanced Archival in Greenwood Village, Colo., Amass is the only direct-access jukebox file system to provide a single-device, single-file system view of all models of the Cygnet Series 1800 family.

The series offers integrated functions such as high-speed, on-line index and magnetic disk caching. It also features a reliability rating of 425,000 mean exchanges between failures, and its storage capacity ranges from 162.4G bytes to 1.4T bytes.

Prices start at $25,000.

▶ *Advanced Archival Products*
(303) 792-9700

Tangent Computer, Inc. has announced NetRun, a line of high-performance network workstations.

The systems are said to offer 50% greater network performance than competitive units with typical Novell, Inc. NE2000 network interface cards, according to the Burlingame, Calif., company.

The NetRun line provides a 32-bit interface with VL bus graphics acceleration. Two models are available, the VL NetRun and the Universal NetRun. Both come equipped standard with 4M bytes of RAM, a 40-MHz Intel Corp. I486 CPU, 16550 high-speed communications circuitry, a 32-bit VL bus disk interface, a 120M-byte, 19-msec hard drive, a 16-bit Parallel Tasking Ethernet interface, a 1.44M-byte floppy and a 14-in. color monitor. DOS 6.0 and Windows 3.1 are preinstalled.

The VL bus version is called the VL NetRun and costs $1,895. The Universal bus NetRun supports VL bus, XT/AT bus and most Extended Industry Standard Architecture bus expansion cards; it has a base price of $2,195.

▶ *Tangent Computer*
(415) 342-9388

Unisys Corp. has announced two entry-level Unix departmental servers for commercial users looking for network-ready systems.

According to the Blue Bell, Pa., company, the servers increase performance while helping users manage the transition from Intel Corp.'s I486 to Pentium technology.

The U6000/300 system employs a 60-MHz Pentium processor and was designed for high-performance server applications. The U6000/100 uses a 66-MHz I486 DX2 processor; it is field-upgradable with a Pentium processor module to become a U6000/300.

The servers offer a range of key features, including redundancy and data integrity. These features enable the products to be used in distributed applications and transaction processing environments.

The U6000/300 is priced from $12,750. The U6000/100 is priced from $8,800.

▶ *Unisys*
(215) 986-4011

Hadax Electronics has announced its LAN Access Unit (LAU).

According to the Ridgefield Park, N.J., company, connecting one or two analyzers to the LAU enables the analyzers to access up to eight LANs for testing.

Two LANs can be tested at the same time because both analyzers can operate simultaneously. The need for dedicated analyzers for each LAN and the act of physically moving test equipment among the LANs is eliminated.

The L210 Ethernet LAU is available in an eight-port model, offering connector options for either DB15 for AUI or keyed RJ-45 for 10Base-T. The L200 Token Ring LAU is available in an eight-port model, and its connector options are data connectors, RJ-45 or DB9 connectors. The product is 2¾ inches high and fits in a standard 19-in. rack.

The L210 for Ethernet and the L200 for Token Ring each cost $1,395.

▶ *Hadax Electronics*
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Retailer swings its partners to EDI

By Lynda Radosevich
MINNEAPOLIS

This summer Target Stores, Inc.'s purchasing department kicked the paper habit: it managed to get 100% of its trading-partner transactions onto electronic data interchange (EDI) systems.

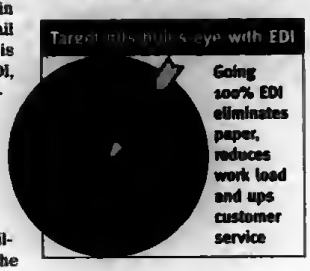
Unlike retail competitors Kmart Corp. and Wal-Mart Stores, Inc., which mandated in 1990 that all their trading partners move to the electronic exchange of business documents, Target waited for EDI systems to mature and its partners to naturally evolve to the technology.

This meant that as of last January, almost 86% of Target's purchase volume had migrated to EDI. At that point, "it didn't make sense to have a paper system in place," said Jane Lucas, director of total quality and quick response for Target.

The company then set a June deadline to go 100% EDI, which Lucas characterized as now being "almost as pervasive as the telephone."

However, while EDI is common in the retail industry, systems that include every trading partner are rare.

"About 95% of the trading partners of the Top 15 retailers are on EDI," said Torrey Byles, EDI/electronic commerce program director for Input, a consulting company in Mountain View, Calif. "In retail and distribution, it is de rigueur to have EDI, especially in discount retailing, because price is the competitive differentiator."



And saving money by eliminating paperwork helps retailers cut prices, he explained.

But in most retail companies, the last 5% of trading partners, which typically represents a "trivial amount of their business," does not make it onto the big retailer's EDI systems, Byles said.

In Target's case, the non-EDI trading partners represented only 14% of business purchases but accounted for more than half the retailer's 2,700 suppliers.

Lucas said one key component to getting them to use EDI was complying with Voluntary Interindustry Communications standards, a subsegment of the ANSI X.12 EDI standard aimed at the retail, apparel and textile industries. X.12 standards provide the syntax for business electronic transactions such as purchase orders.

Even so, there was a crunch at the end of the conversion process. Though Target had announced last New Year's Day that it wanted to go paperless by June, as of May about 700 business partners still straggled behind on paper systems. The biggest conversion challenge, then, was having Target specialists set up all those companies' profiles in one month.

However, the benefits, including an unquantified reduced work load, increased accuracy and speedier processing, far outweighed one uncomfortable month, Lucas said.

Internally, Target uses Gentran software from Sterling Software, Inc. in Dublin, Ohio, to translate incoming documents into a form used by the company's order-processing systems.

Trading partners have the option of exchanging documents with Target using a value-added network (VAN) — either General Electric Information Services in Rockland, Md., or Sterling Software's Ordernet. Smaller partners can also use TargetDirect, a mailbox service provided by Target so they do not have to pay for VAN services.

Life in the EDI world is becoming less cumbersome for smaller businesses, Byles said.

This is because newer EDI software makes it easier to tie EDI information to PC-based spreadsheets and database applications using Windows, according to Byles.

New, improved SNMP still has a way to go, but products emerge

By Elisabeth Horwitt

The networking industry's movement to embrace Simple Network Management Protocol (SNMP) Version 2 has so far been more of an amble than a rush. However, at least two vendors, Sun Microsystems, Inc.'s SunConnect division and The Wollongong Group, Inc., have promised that their enterprise network management platforms will support the emerging standard by year's end.

Once in product form, the enhanced version will provide major advantages over the original version of SNMP, among them: the ability to secure management systems and tasks against unauthorized access, more efficient gathering of bulk files from managed stations and interaction among different network management systems (see chart).

Unfortunately, the first SNMP 2-compatible platforms will make use of the above features in a limited fashion until managed network devices also support the standard.

Sun expects the industry to rally around SNMP Version 2 within the next six months, said Joe Matibag, senior product manager. Initially two Sun partners, Nynex Allink and Isicad, Inc., have committed to support SNMP 2 with their products, which they are integrating with SunNet Manager Version 2.2. Cisco Systems, Inc. and Banyan Systems, Inc. are rumored to be readying SNMP 2 announcements.

Allink provides a network management platform; Isicad offers software for trouble ticketing and problem management.

However, Sun's SunNet Manager 2.2, scheduled for release next month, only supports two major SNMP 2 features: bulk retrieval and security.

Sun makes plans

Sun will roll out full support of SNMP 2, along with other major standards such as the Common Object Request Broker Architecture and Common Management Information Protocol, with its upcoming distributed management platform, Sun spokesmen indicated.

Meanwhile, SunNet Manager 2.2 will offer other advantages over its predecessors, including the ability to pinpoint problems across links between routers and other internetworking devices.

SunNet Manager 2.2 will be available in October on Solaris 2.x at a suggested retail price of $3,995.

Wollongong, meanwhile, is claiming full SNMP Version 2 compatibility for its PathWay Management Station 3.1. The Palo Alto, Calif., vendor is replacing a proprietary management information base with SNMP 2's manager-to-manager protocol so distributed management nodes can communicate with one another, according to Joe Hielscher, director of product marketing.

New and improved!

The major enhancements of SNMP Version 2 compared with Version 1

1	A 10-times-or-better speed and efficiency improvement in bulk data retrievals.
2	Trilevel security, configurable by the network administrator.
3	Improved support for communications among different vendors' network management stations. For example, the management systems now have a standard way to negotiate which stations will handle which services.
4	Improved "set" capability, the function of a manager's workstation to write to a remote management station.
5	An SNMP shift from "TCP/IP-centric" to "protocol-neutral."

Source: SNMP Research, Inc.

Once the major vendors support SNMP 2, Wollongong's management nodes will potentially be able to communicate with other vendors' nodes. Then users will be able to set up multivendor domain management systems, each specializing in a different type of application or network and to share information as needed.

First, however, the industry needs to do further standardization work, particularly in the area of defining how various network objects are managed, industry analysts said.

Meanwhile, Wollongong has used SNMP 2 to beef up the interaction among its distributed management nodes, Hielscher said. For example:

- The get-bulk feature will allow PathWay Management Station Nodes to exchange large amounts of data more efficiently.
- The security feature will allow users to guard interactions between distributed nodes against unauthorized intrusions.

In addition, the new version of the product can correlate, filter and acknowledge alarms from routers to prevent alarm broadcast storms, Wollongong said. It also features a distributed rule-based expert system and report generator that enables users to customize reporting functions.

When network hardware and networked system vendors implement the new version of the standard, the system will be able to extend security and get-bulk features out to managed devices as well, Hielscher said.

PathWay Management Station 3.1 runs on Sun's SunOS and Solaris, Novell, Inc.'s UnixWare, Digital Equipment Corp.'s Ultrix and Motorola, Inc.'s Unix System V Release 4-based operating system. It supports Motif/X Window System-based interfaces for applications and is available 90 days after receipt of order at a list price of $10,000.

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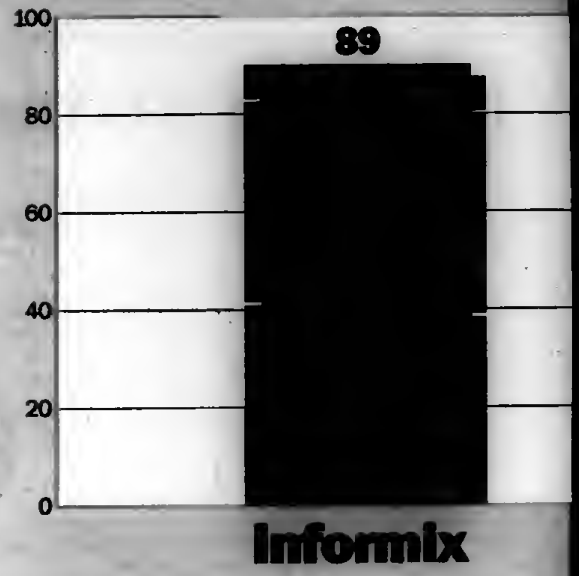
- Sun Microsystems
- Texas Instruments
- Unisys

*UNIX TPC-audited benchmarks published by hardware manufacturers as of 9/1/93.



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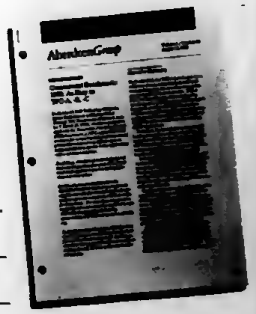

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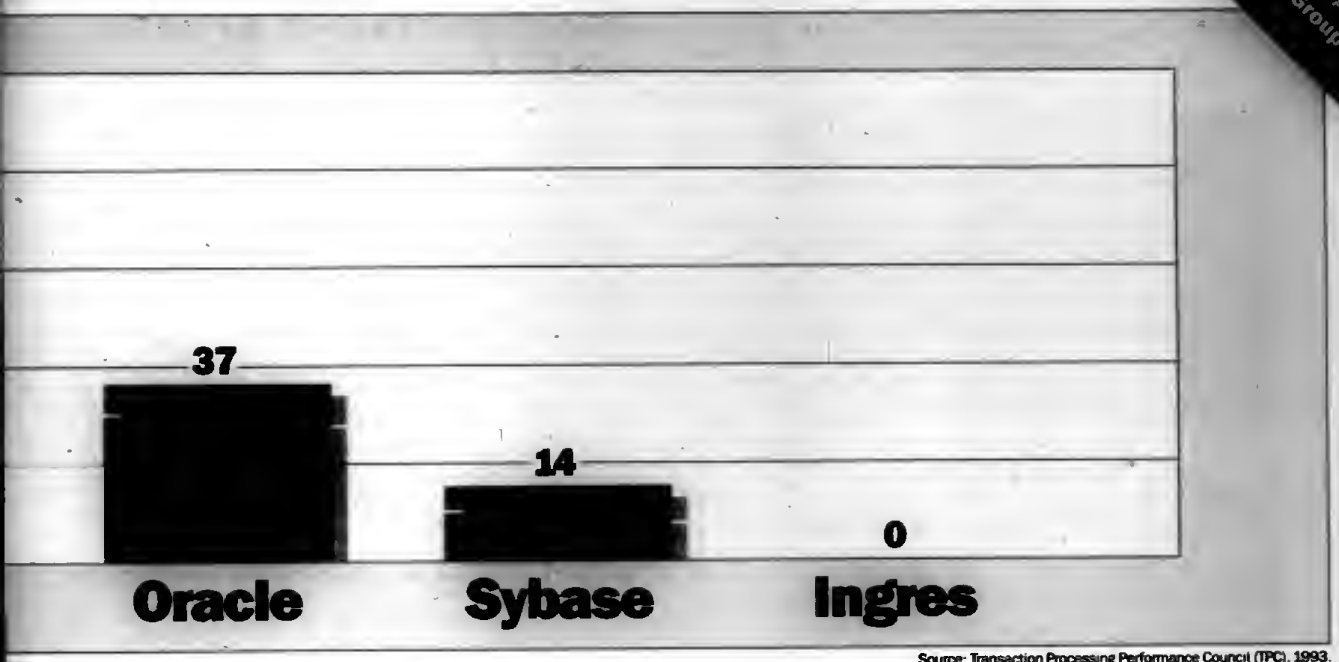

Source: Transaction Processing Performance Council (TPC), 1993.

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Package promises to back up LAN data on mainframe

By Jean S. Bozman
RANCHO COROOVA, CALIF.

Sterling Software, Inc. said last week it has begun shipping an enterprisewide client/server storage management system code-named Galil, which was announced nearly a year ago [CW, Oct. 26, 1992]. The software was designed to back up datu on corporatewide LANs and to ship the data to mainframes.

Now called SAMS:Expert, the LAN-based software allows users to fill out u software menu that identifies files for enterprise backup and storage. A companion product, SAMS:Vantage, supports central-site reporting and data recovery on IBM/MVS mainframes.

Still missing from the client/server package is SAMS:Control, which has middleware that supports LAN backup on the mainframe. SAMS:Expert and SAMS:Vantage are in Release 1.0, which has limited data security and support for network backbones. SAMS:Control is due to ship in 1994, Sterling said.

The Sterling product package addresses an important information systems challenge — enterprisewide datu management — but faces competition from established LAN backup packages, said Patrick McBride, u program director at market research firm Meta Group, Inc.'s service and systems management strategies group in Westport, Conn.

The first release supports Novell, Inc. NetWare LANs. But Sterling plans to ship Release 2.0 in March 1994, said Bob Brown, director of product marketing at Sterling's Storage Management Division. Release 2.0 will support TCP/IP and IBM's LU6.2 protocol, as well as Banyan Systems, Inc.'s Vines LANs, IBM's LAN Server and Microsoft Corp.'s LAN Manager network operating systems.

SAMS:Expert is priced ut $2,995 for the LAN Server and at $250 for 10 PC users. SAMS:Vantage for the mainframe is priced ut $35,000 for a mid-size IBM mainframe.

Inmac offers catalog globally

By Gary H. Anthes
SANTA CLARA, CALIF.

Inmac Corp., a direct marketer of computer products, has published an internuttonal catalog of networking prodncts and services that stretch beyond equipment offerings to full-scale network design. It will be translated into several languages, marking the $300 million company's entry into non-U.S. markets.

Inmac's networking offerings include services such as network planning, installation, integration and maintenance. These services will be provided on behalf of Inmac by Memorex Telex Corp.

"The catalog serves the primary market of customers who do not have any kind of LAN installation — and we can take them soup to nuts including pulling the wire if they need that — and the aftermarket, where customers need incremental components," said Jeff Heimbuck, Inmac president.

The catalog lists 3,000 items from modem cables to complete network systems, including hardware, software, test equipment, power backups and the like. It includes mainstream U.S. products as well as products unique to European markets, Heimbuck said.

One of a kind

Heimbuck noted thut Inmac is unique in its combination of hroad geographical reach and vendor-independence. Most multivendor LAN value-added resellers operate in local markets only, he said.

"If you want to get something going across the U.S., you have to deal with u single vendor like Novell or IBM or 3Com, and you're stuck with whoever they're partnered with," he uaid.

Start-up rolls out enterprise net product

Arkhon Technologies, Inc. in Cerritos, Calif., said it intends to go up against the big guys with an enterprise network and systems management plutform.

An eight-person start-up, the company is planning to roll out next year u kitchen sink-type of product thut will manage networks, networked systems and applications, as well as security, validation and encryption functions.

It will also perform these functions:

- Consolidation and correlatton of informatiou from the leading network management systems.
- Expert system technology to automatically zero in on and take care of common network problems based on rules derived from discussions with human experts.
- Neural network technology, which allows antomated systems to learn from network events and gain experience in solving common problems.
- Distribnted domain managers that will cooperate using the Common Object Request Broker Architecture.

The product will support industry standards such as the Open Software Foundation's Distributed Management Environment and Distributed Computing Environment, as well as SNMP, the company said.

WHISTLING UNDERWATER.

WALTZING TO RAP MUSIC.

Florist's revamped system blooms with new WAN link

By Thomas Hoffman
WESTBURY, N.Y.

In 1984 the owner of Flora Plenty, a retail floral chain in New York, purchased Dallas-based 800-Flowers, a struggling global floral service that was losing more than $400,000 per month.

Since then, James McCann and his brother Chris, the company's vice president of operations, have leveraged a mix of marketing entrepreneurism and information technology to return the now $50 million organization to profitability.

The company's next information technology project is to swap out an IBM AS/400 at one call center in favor of an NCR Corp. Unix-based server to allow portability of telemarketing applications between the firm's two primary telecenter locations. The intersite connectivity medium will be a fractional T1 link, slated to go live in December.

Chris McCann (left), *vice president of operations, discusses operational plans with James McCann, president of 800-Flowers*

The goal of the $250,000 hardware/software wide-area network project is to provide tighter communication ties between the company's two 800-Flowers call centers, one in Worcester, Mass., and one here, where the company moved its headquarters in 1987.

The WAN project is also expected to help consolidate the processing of all sales information on an NCR 3550 server in Westbury in time for the holiday order rush.

"By having all these processes done in one facility, we anticipate better control of our data and better service to our customers," Chris McCann said.

Separate order processing

In the past, each telecenter handled inbound sales orders, outplacement of orders to networked florists and customer satisfaction ratings separately. This posed a problem because the Worcester telecenter processed its sales information using an AS/400 and the Westbury facility used an NCR 3550 server.

Application software had to be reconfigured for the AS/400 environment — a time-consuming and costly endeavor — and the two telecenters were not able to communicate well with each other.

To better integrate these facilities, the company plans to replace Worcester's AS/400 with an NCR 3450 server early next month.

According to McCann, Unix has some other advantages over the AS/400. "Because we ramp up our order processing by a magnitude of 10 during the holidays, it's easier to process orders with dumb terminals linked to Unix hosts than with PCs linked to the AS/400," he said.

Also, for telemarketing representatives, "it's easier to call up Help screens and different windows under Unix," McCann said.

Screen prompts

800-Flowers customized its telemarketing software three years ago so an order screen would prompt a telemarketer to ask the customer a full range of sales questions, make suggestions for floral arrangements in different price ranges and provide information about various packages offered for birthdays and other special occasions.

Those types of capabilities have helped 800-Flowers vault to the top of the industry, according to Frances Porterfield, publisher of *Florist's Review*, a monthly floral industry magazine in Topeka, Kan.

Although Florist Transworld Delivery Association — better known as FTD — and other players have entered the 800-market during the past 12 to 18 months, 800-Flowers' technical and marketing savvy has placed it well ahead of its competitors, Porterfield said.

For example, she said the 800-Flowers customized telemarketing software appears to be more user-friendly and covers a wider range of customer needs than what the competition has developed.

Once the NCR 3450 is installed in Worcester, the file server will be linked via Ethernet over a 384K bit/sec. fractional T1 connection to the company's private-branch exchange and NCR 3550 in Westbury. This will allow the company to more quickly and easily download sales information to Westbury. Also, both telecenters can now share a common database.

Once the WAN is installed, orders taken by the Worcester telecenter will continue to be processed on an IBM 3090. From there, they will be downloaded to the NCR 3450 and transmitted to the NCR 3550 in Westbury, where the sales will be processed and finalized.

TYPING WITH BOXING GLOVES.

MOVING MISSION-CRITICAL APPLICATIONS TO CLIENT/SERVER.

Firm to go virtual with frame relay

By Gary H. Anthes
RESTON, VA.

When DynCorp calls itself a "diversified" professional and technical services firm, it is not kidding.

The billion-dollar company's 21,000 employees at 188 worldwide sites work at a broad array of jobs: baggage handling at airports, medical research at the National Cancer Institute, the operation of the Strategic Petroleum Reserve along the Gulf Coast and others.

And now DynCorp has a highly distributed computing and communications infrastructure that supports that geographical and functional diversity.

When DynCorp downsized in 1990, it did not just set in motion a gradual move to client/server computing with the idea of postponing the inevitable upgrade to the next mainframe. In 10 months, the company set up LANs at 11 major sites, moved all applications off two IBM mainframes and sent the machines out the door — one to a scrap dealer.

The company even had an "unplugging party" on the day the machines were removed. People involved in the process drank champagne and toasted a new era in information systems.

DynCorp hired or appointed LAN administrators at each of the 11 sites but still reduced its IS staff from 66 to 22 people. The $3.5 million up-front investment cut the $4 million annual IS budget in half. The alternative to client/server — a move to a distributed, complex instruction set computing mainframe system — would have boosted outlays by 25% to 50%.

Butch Fernstrom, *MIS director: The WAN will blend geographically diverse pockets of expertise*

Now DynCorp is taking another big step to bring its information systems more in line with the way it does business. It is tying together its LANs through a frame-relay wide-area network provided by Sprint Corp.

"The WAN provides the communication medium for ... a virtual corporation," said Butch Fernstrom, MIS director.

According to Fernstrom, this is because the U.S. network will allow standardization and wider deployment of the company's electronic-mail system and will allow the implementation of groupware, work-flow automation, videoconferencing and other modern practices.

In particular, he said, it will make it easier to form far-flung teams of experts to collaborate on large, complex proposals, which for the government can rue to thousands of pages and may be won or lost on bid differences of less than 1%.

"Big companies like us have a lot of expertise, but the pockets of expertise are hard to tap into," Fernstrom said.

Paul Lombardi, *president of DynCorp's Government Services Group: 'If you can't communicate, you can't operate'*

Easier to update

He said frame relay was less costly than the older point-to-point private line network approach and that frame-relay technology's software-defined circuits made it easier to alter network topology as connectivity requirements changed.

Currently, "we are at the mercy of faxes and overnight mail," said Paul V. Lombardi, president of DynCorp's Government Services Group. "Federal Express has got us by the neck."

Lombardi declined to predict how much of the company's $18 million annual travel budget and $1 million in overnight delivery outlays might be saved by the network. But he did say cost savings were not the major objective of either the move to client/server or the move to the WAN. He said the moves were vital to the firm's success as a business.

Efficiency gains

"If you can't communicate, you can't operate. This will lead to a significant improvement in efficiency," Lombardi said.

He said the WAN will enable DynCorp to set up a companywide marketing management information system that will, for example, easily convey sales leads unearthed in one part of the country to interested parties elsewhere.

DynCorp has six sites on the WAN now. Novell, Inc. LANs connect to the Sprint frame-relay network via Wellfleet Communications, Inc. routers. Two more sites will be added during the next year, Fernstrom said. Other sites will dial in to the WAN.

He said it costs $6,000 per facility — mostly for the routers — to set up the WAN and will cost $150,000 a year to operate the network. The operations costs mostly represent fees to Sprint, according to Fernstrom.

Single station shows bird's-eye view of vast net

By Jean S. Bozman
CHICAGO

From a lone computer console, Stone Container Corp. can survey the sprawling network that supports its $5.5 billion paper-and-corrugated container manufacturing empire.

The company achieves this through network alert-unifying software it runs on a Sun Microsystems, Inc. workstation.

Boole & Babbage, Inc.'s Command/Post software allows the Sun workstation to display all major nodes in the company's enterprise network, according to information systems staff members at Stone. These include an IBM 3090 Model 200 E at corporate headquarters, approximately 50 IBM AS/400s and 60 Hewlett-Packard Co. HP 3000s scattered across the U.S. and Canada.

Each computer has been wired to send a network alert to the central-site console in the event of an operational failure or an environmental disaster. The benefit of seeing all computers from one spot is that end users experience less downtime and outages are reported quickly, according to Rich Antonini, manager of computer resources.

Four Sun IPC workstations, used by data center operators here, display the same information shown on the console screen. Routine restarts are handled automatically, although operators can also intervene.

The sweep of the information on-screen is wide, but IS managers here would like to improve the depth of information represented by each network alert. Detail is missing today because the wide variety of systems — gained through corporate acquisitions of smaller companies — do not interoperate. Instead, they report up to the IBM mainframe, seven AS/400s and a large HP 3000 at headquarters.

Better integration

The goal is to have a fully integrated system console; currently, operators have to log on to remote systems to access performance data, Antonini explained.

Stone aims to improve the situation in two ways: by interfacing more of the system-specific performance monitors into the central network console and by gradually migrating to open systems, including Unix servers, to improve interoperability and application portability.

Antonini said he expects Boole & Babbage to forge more links between its Command/Post system and system-specific performance analysis tools. For example, Stone's AS/400s run a monitoring tool from Help Systems, Inc. in Minnetonka, Minn., he said. Novell, Inc. LANs run another monitoring tool from Ungermann-Bass, Inc. in Santa Clara, Calif.

Antonini, who acquired Command/Post two years ago, said he expects Boole & Babbage to carry out much of the integration with other vendors' monitors.

"Boole is not going to go out and make automation tools live on every [type of] platform, but it will add hooks or connections to other vendors' products," he predicted.

As it is, Stone's 12-person operations staff has to be versatile when it comes to operating systems and languages, IS managers said. Operators trying to resolve a problem with a remote computer can open a window on the Boole & Babbage console to log on to the remote system.

Operations manager Jim Ullery said Stone's integrated console is just one step toward a long-range goal of building a network based on open systems standards. "We are going to be implementing a network strategy to try to get any-to-any connectivity," he said. The goal would be to allow "anybody in this office to log on [to the remote system] from their workstation."

Open systems hopes

Open systems will also bring greater flexibility to application development, he said. "We're trying to get vendor independence so we can have portable program expertise," Ullery explained. "We're hoping to achieve a universal development environment where it doesn't matter what competing platform we're on."

Today, programmers specialize in machine-specific languages for the AS/400 and HP 3000 machines, he said.

Given the small size of Stone's operations staff, the console did not reduce the need for operators since it was installed in 1991. But it did improve overall efficiency, reducing the number of terminals on operators' desks and supporting preventive maintenance, Antonini said.

"We were able to catch errors that might have gone unnoticed," he said. "I expect we will become even more proactive as we use more of the system tools from Boole and other vendors."

ON SITE

Stone Container Corp.
Chicago

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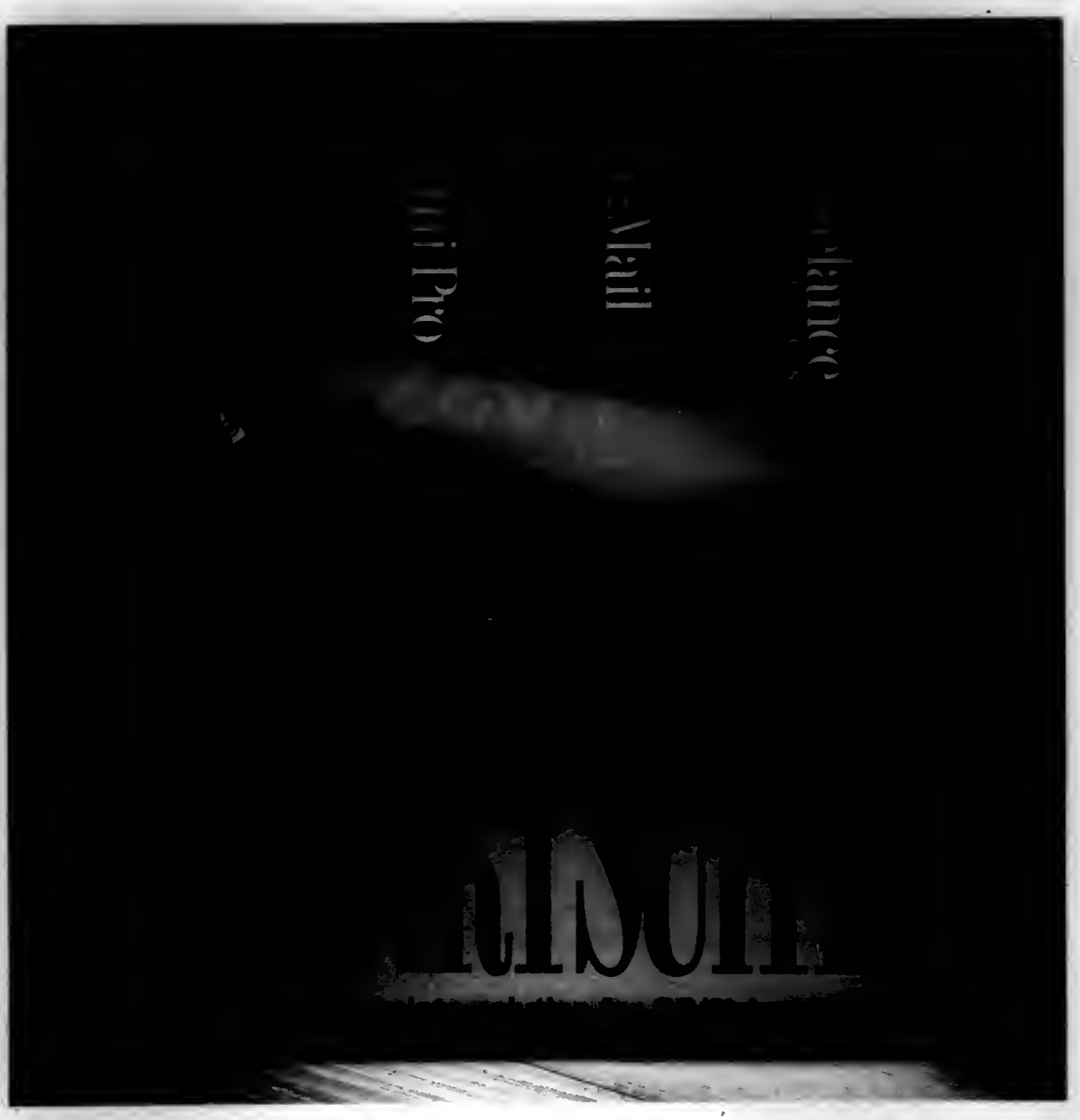

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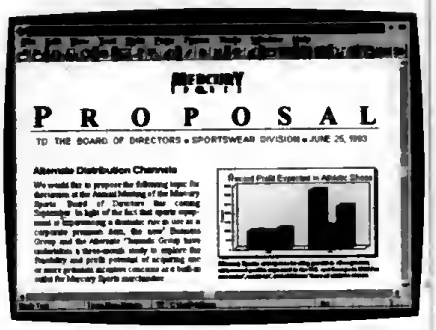

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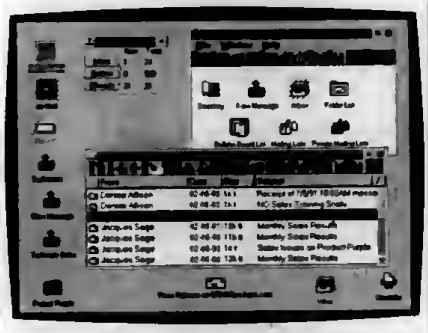

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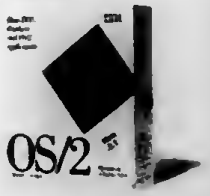

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Banks guard against electronic crimes

By Mitch Betts
WASHINGTON, D.C.

These days bank robbers are more likely to target financial networks with names such as Fedwire, Swift and Chips than break into a bank vault. Consequently, most major banks now carry insurance policies for electronic crimes, according to the American Bankers Associatioo

An annual survey of 376 banks indicated that better than 90% of medium-size and large banks have insurance policies that cover crimes involving computer systems or electronic fuods transfer (EFT) networks.

The vast majority get the electronic crime coverage via a rider that supplemeots their basic "financial institutioo bond" coverage for criminal acts.

However, a handful of the banks surveyed (8%) carry a separate insurance policy specifically for electronic crimes, the Washington, D.C.-based trade association reported.

"While electronic payment systems offer speed, cost efficiency and convenieoce, they have replaced the bank vault as a target for criminal violations," according to the associatioo's report on bank insurance.

Smaller community banks were less likely to have insurance for high-tech crimes.

For example, coverage for computer viruses and telephooe toll fraud is growing in popularity among the larger banks but has little acceptance amoog small community banks, the sorvey found.

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Briefs

Bellcore to open ATM lab

Bellcore, the research and technical services arm of the regional Bell telephone companies, plans to open an Asynchronous Transfer Mode (ATM) interoperability laboratory at its Red Bank, N.J., facility at the end of the month. The purpose of the installation is to spur deployment of mixed-vendor ATM networks. Customers who are interested in ATM can subscribe to a newsletter that tracks the interoperability progress of participating vendors.

Cisco tests switch

Meanwhile, Cisco Systems, Inc. said it has successfully tested its high-end Cisco 7000 router with five vendors' ATM switches: Fore Systems, Inc., GTE Corp., NEC Corp., Newbridge Networks Corp. and TRW, Inc.

Intel picks Fourth Wave

Intel Corp. has licensed Fourth Wave Technologies, Inc.'s wireless messaging software with plans to incorporate it into its LANDesk Manager network monitoring system. The idea is to allow companies to notify LAN administrators of network conditions by alphanumeric pagers.

Remote, mobile user help

IBM and Shiva Corp. in Burlington, Mass., said they will jointly develop remote networking technology to allow mobile and remote users of IBM computers to access data and communicate with corporate offices as though they were on the corporate internetwork.

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Digital Communications Associates, Inc. has announced Remote LAN Node Version 2.0, client/server remote-access software.

Remote LAN Node Version 2.0 features a new modular architecture plus enhancements such as Token Ring support, Simple Network Management Protocol, an application programming interface (API) and a Windows client interface.

A Remote LAN Node API is included that enables system administrators to write programs that integrate Remote LAN Node client functionality within their end-user application. According to the Alpharetta, Ga., company, Remote LAN Node Version 2.0 supports challenge handshake authentication protocol, enhanced data encryption, connection time restrictions and password aging.

Remote LAN Node Version 2.0 provides an authentication services model that enables organizations to add multiple servers and communicate with one another to verify password information and user identification.

Remote LAN Node Version 2.0 Ethernet prices begin at $795. Remote LAN Node Version 2.0 Token Ring prices start at $995.

▶ *Digital Communications Associates*
(404) 442-4000

BlueLine Software, Inc. and **MultiStream Systems, Inc.** have introduced Hypertape — a multivendor, multiprotocol, automated network backup and recovery software package. The product was developed by MultiStream.

According to Minneapolis-based BlueLine, Hypertape provides automatic, unattended backup of workstations, departmental servers and enterprise servers.

The product can copy data transparently from local disks to tape, optical and other magnetic storage media. Throughout the enterprise, Hypertape enables organizations to centrally manage backup and recovery procedures. Hypertape is used with a variety of Unix implementations.

Hypertape consists of three components: Control Node, Backup Node and Service Node. Supported network protocols such as Digital Equipment Corp.'s DECnet or TCP/IP can be used as a path between nodes.

A permanent license for Hypertape starts at $35,000 for a three-node configuration.

▶ *BlueLine Software*
(612) 542-1072

Frye Computer Systems, Inc. has announced Version 1.5 of The Frye Utilities for Networks-NetWare Early Warning System, its network monitoring product.

According to the Boston firm, this version offers the addition of file monitoring, multiple server configurations, automatic baselining, scheduled monitoring, print queue monitoring, more response and security options, automatic logging of all messages to screen and log files.

The Frye Utilities for Networks-NetWare Early Warning System Version 1.5 costs $495.

▶ *Frye Computer Systems*
(617) 451-5400

Motorola/UDS has introduced BitRUNR, a family of high-performance, multiprotocol, dial-up internetworking routers.

According to the Hunstville, Ala., company, the BitRUNR Turbo CS and the BitRUNR XP are two of the industry's first dial-up routers to simultaneously support TCP/IP, Novell, Inc.'s NetWare IPX and Apple Computer, Inc.'s AppleTalk protocols for network access and high-speed wide-area network connections.

Designed for central site applications, the Turbo CS is expandable from four to 26 asynchronous ports, up to three T1/E1 synchronous ports and up to six 128K bit/sec. WAN connections. Both products include connectivity options for both Token Ring and Ethernet networks.

BitRUNR XP was created for remote offices or small central site networks. A basic configuration of the unit provides three asynchronous WAN ports and one Ethernet card. BitRUNR can be expanded to accommodate up to 19 WAN connections.

Pricing begins at $2,495.

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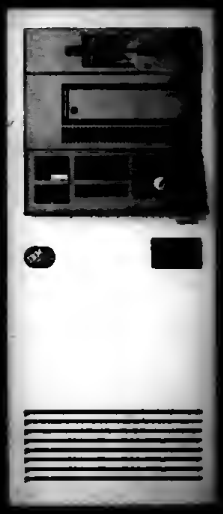

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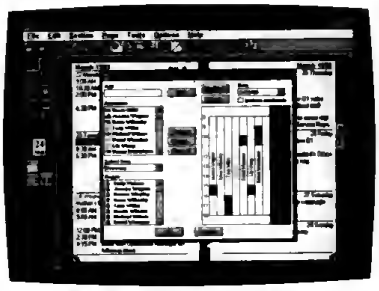

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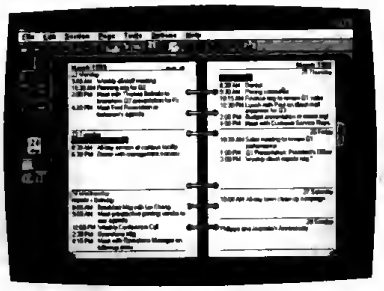

With an on-screen calendar, a to-do list, an address book, a note pad and an anniversary reminder built into one package, Organizer is a powerful personal tool that's fun to use.

Both Organizer and ccMail have exceptionally friendly Windows interfaces – help calls are minimal, and your life is made a little easier.

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Piece of profit pie key to Perot deal

By Mark Halper
PARIS

When the information systems chief at Europcar International found his shop choking on costs, he decided it was time for the drastic Heimlich maneuver.

To administer the jolt, he hired Perot Systems Corp. and embraced a client/server outsourcing agreement based on a radical concept that may breathe life into other IS partnerships of the '90s: revenue sharing.

Robert Verasdonck, director of IS at Europcar, recalled that before the Perot contract was signed in January 1991, "We were getting more and more strangled. We were looking at 20% growth of IT costs and 14% revenue growth."

So Europcar and Perot worked out a 10-year deal that calls for the rental car company — Europe's largest — to pay Perot a percentage of Europcar revenue after the second year. Payments are fee-based through December.

Perot and its subcontractors are burning the midnight oil trying to transfer operations by that time from Europcar's old, hierarchical systems to a distributed environment built largely on NCR Corp. Unix computers. Perot is also responsible for operating Europcar's mainframes in the meantime.

ON SITE

Europcar International
Paris

Challenge: To replace outdated, incompatible systems in varied nations while keeping IS costs low.

Strategy: Outsourcing agreement with Perot Systems under which Perot will carry out the system replacement for a share of Europcar's increased revenue.

Status: After delays, several new systems now on-line and others expected by year's end.

Piece of the pie

While Verasdonck declined to disclose Perot's exact revenue share, he said it is less than half of the 6.8% of revenue that Europcar's information technology operation has been spending.

The price thus provides Perot's guarantee that Europcar will improve its information technology machinery by one of the most commonly applied yardsticks: costs as a percentage of revenue.

But the incentives built into the price model go beyond cost cutting. The revenue side of the equation gives Perot greater motivation to develop

Europcar, *page 101*

IBM's 'no-price tags' policy no problem for customers

By Johanna Ambrosio

Customers say IBM's no-price tags policy for its new mainframes has pretty much meant business as usual. The policy has not played out along the lines that some had feared when the company abolished prices for its newest big machines in February.

Back then, some had questioned IBM's policy of each mainframe being essentially special ordered, with prices negotiated depending on what the customer wanted for the total package — including service and support — and how much business the customer did with IBM each year. Some users' biggest gripe was they would not know what a "good" deal was if there was no basic price from which to start negotiating.

But that has not happened, and instead, the large customer base has felt very little, if any, impact. "It hasn't been an overly big deal," said Larry Bacon, senior vice president at The Travelers Corp. in Hartford, Conn. "We never knew what the price really was anyway. So what's new?"

John Wood, vice president for computing and communications at the Royal Bank of Canada, agreed. "The list price is an incidental number. It's really no different than it's ever been," Wood said.

Where there's a will, there's a price

IBM's official stance notwithstanding, users have lots of sources for pricing information. Within a few weeks of the February announcement, analysts from International Data Corp., Gartner Group, Inc. and Meta Group, Inc. started providing their best estimates as to what the machines are selling for. Gartner Group's current price, according to analyst Jim Cassell, is $62,500 per million instructions per second (MIPS).

Craig Goldman, chief information officer at The Chase Manhattan Bank NA in New York, said the bank "has always found ways to get what we believe is good price/performance, including purchasing non-IBM products."

Customers such as The Travelers' Larry Bacon *said they have noticed little change with IBM's 'no-price tags' policy. 'We never knew what the price really was anyway. So what's new?'*

Even with no price tags, customers said, the fundamentals still apply. Included among the tried-and-true negotiating tactics used by many of IBM's largest accounts are the following:

- Looking at the per-MIPS prices of used equipment.
- Demanding that all competing players provide one, and only one, bid rather than getting into a protracted price war.

IBM, *page 103*

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IBM to allow AS/400 clustering

By Craig Stedman

IBM's Application Business Systems unit plans next year to add clustering capabilities to the AS/400 that executives said would push the midrange computer line's raw performance up into the rarified air occupied by the high end of the company's ES/9000 mainframes.

John Thompson, senior vice president and general manager of Application Business Systems, said at a recent press conference that pilot installations of AS/400s clustered via the Fibre Channel interconnect are scheduled at customer sites for the first quarter of 1994. He did not specify when general availability is expected.

The AS/400 architecture allows clusters of up to 32 systems, but an unspecified smaller number will be supported at first, Thompson said. He noted that maximum AS/400 throughput, now about one-third the performance of a high-end, air-cooled ES/9000, should increase by three or four times once clustering is available.

Marc Cohn, senior vice president of information systems at Enterprise Rent A Car Co. in St. Louis, said Application Business Systems officials talked in early briefings on the clustering concept about linking six to 10 machines out of the chute. However, that was not presented as a definite plan, he added.

The first clusters may not support a single system image, under which they would look like one large machine, Cohn said. Instead, IBM appears to be planning to set them up as client/server-style platforms where one AS/400 would act as a server for others; the single image concept would be added in a later release.

Nevertheless, observers said the clustering capabilities should provide an upgrade path for large AS/400 shops and increase the line's appeal as a downsizing platform for mainframe users. Clustered AS/400s "will attract a great number of people using traditional mainframes," said David Andrews, managing partner of ADM Consulting, Inc. in Cheshire, Conn.

Cohn said he expects clustering to be an "extraordinarily valuable" way to support larger transaction loads. Enterprise Rent A Car has 10 AS/400s.

DDM too slow

AS/400 machines can already be linked in an ad hoc fashion through IBM's Distributed Data Management (DDM) software, which finds files on remote systems and treats them as if they were stored locally, Cohn said. But performance is "intolerably slow" with DDM, he added.

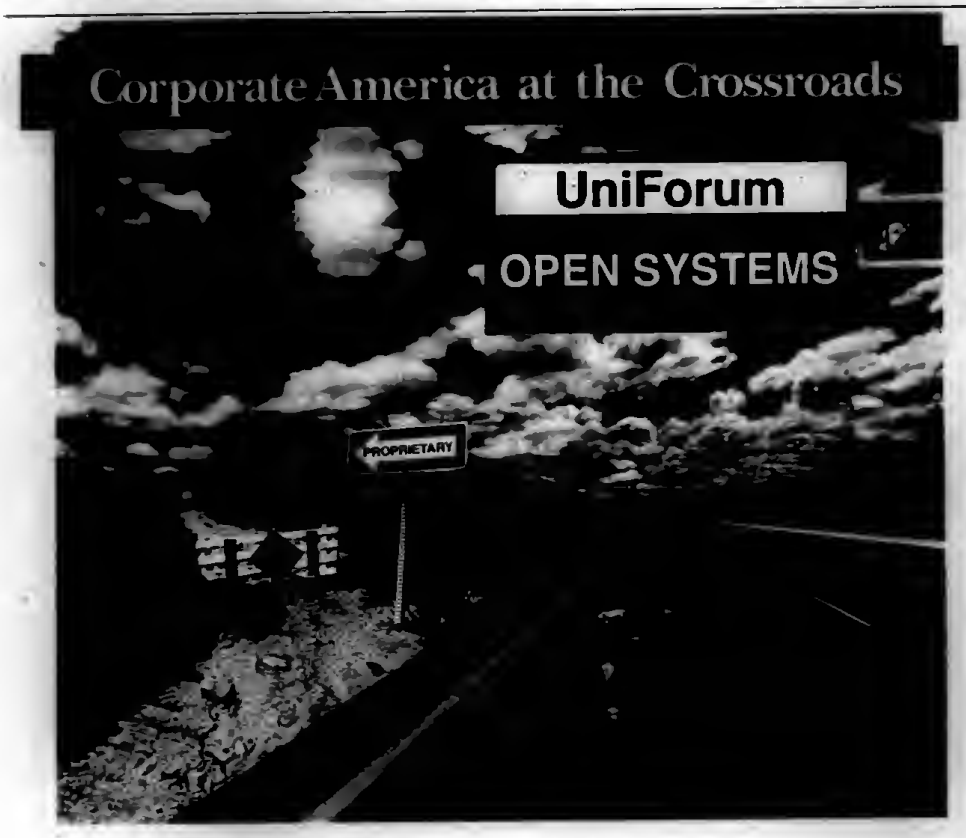
"You can look at 20-second response times, which are totally unacceptable in a point-of-sale application," Cohn said. Implementing DDM also is a time-consuming process, and the development tools for creating DDM-based applications "aren't very good," he noted.

Scott Plumer, technical support project manager at Gannett Co.'s data center in Silver Spring, Md., said the high-availability features that are possible in a clustered system would be useful. The clustering approach also sounds more beneficial than just building larger multiprocessors, he added.

However, the AS/400's storage capacity and I/O throughput would have to be increased to make it a true mainframe-class system, Plumer noted. "They have some serious things besides [processing] power that they need to fix before they can even be considered" as an equivalent to a mainframe, he said.

Downsizing from mainframes currently accounts for 600 to 700 AS/400 system sales a year, Thompson said. However, that business is coming primarily from users of IBM's older 4300 series mainframes "who wouldn't tend to go to an ES/9000 anyway," he added.

Application Business Systems is not looking to steal away much business from the ES/9000 line with the clustering plan, Thompson insisted. "I don't ever expect to be able to do real large-scale computing" with the AS/400, he said.



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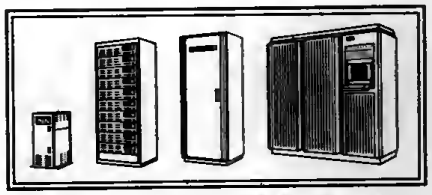

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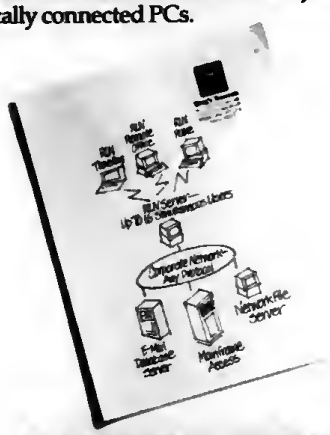

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Supercomputers sound storm alert

Advanced warning model pinpoints severe weather systems

Advanced technology

By Ellis Booker

As the summer's devastating Midwestern floods proved time and again, weather forecasts are valued not only for their accuracy but also for their timeliness.

Almost oowhere is advance warning more important than in the case of severe weather, wheo a piopoint prediction can mean the difference betweeo life and death.

Warning extension

The University of Oklahoma receotly pnshed the scieoce of forecasting severe storms to new heights with the aid of a Cray Research, Inc. supercomputer at the Pittsburgh Supercomputing Center. The collaboration resulted in a computer model — the Advanced Regional Prediction System (ARPS) — that greatly extends the amount of warning Oklahoma weather-watchers can give.

The model could stretch the 30 minutes of warning given today to four or five hours, according to its creators at the University of Oklahoma's Center for Analysis and Prediction of Storms.

In addition, ARPS should be able to ideotify individual storms and their potential for spawning tornadoes.

Unique application

Powerful computers are oo strangers to weather forecasting, of course. However, the amount of computer horsepower devoted to the Oklahoma project was unique.

During a trial at tbe height of the storm seasoo in May, forecasters at the National Weather Service's Experimental Forecast Facility in Norman, Okla., transmitted local weather data across the Internet to a Cray C90 supercomputer in Pittsburgh.

The results, calculated on four of the C90's 16 processors over a 45-minute period, were available by 1 p.m. each day, in time for the afternoon forecast.

A high point in the test was the model's successful prediction of the general characteristics and motion of the severe storms that swept through Oklahoma oo Mother's Day weekend, May 8 and 9.

According to researchers, the test was also the first time such a complex, supercomputer-based storm model was made part of an "operational" weather forecast.

A full-scale ARPS trial is slated for next year.

In a aumerically modeled supercell storm, *the white shows the cloud water field and the yellow contours on the ground show the pour of rain-cooled air spreading out beneath the storm*

Predicting the worst

A computer model that successfully re-created an observed 1992 undersea earthquake and subsequent tidal wave, or tsunami, off the coast of Nicaragua has been applied to the Northern California coastline.

It suggests that this area, too, might be vulnerable.

"We're still working on a model to predict precisely the tsunami's height and the coastline area [involved]," said Kenji Satake, an assistant professor at the University of Michigan's Department of Geological Sciences.

The analysis does not seek to predict where these catastrophic waves will occur but rather simulates the effects of such waves against different shorelines.

Researchers wrote in the July 23 issue of *Science* magazine that the area near Cape Mendocino should be on the watch for tidal waves, which could lash the coastline for as long as eight hours.

Tsunamis, generated by geological shocks, travel at speeds of approximately 500 mph in the deep ocean and grow rapidly when they reach shallow waters. The April 1992 quake off the shore of Nicaragua resulted in 40-foot waves.

—Ellis Booker

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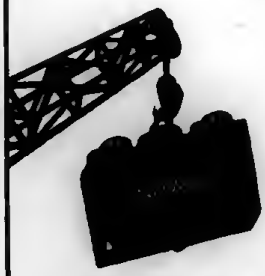

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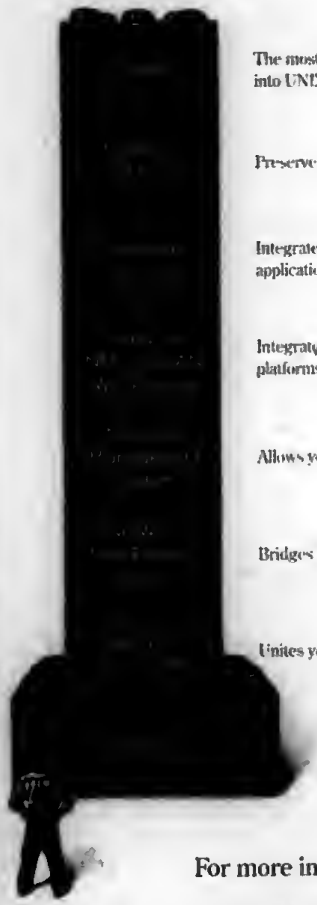

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Europcar

CONTINED FROM PAGE 93

and apply technology that will make Europcar a livelier business.

More money coming into the Europcar coffers means more money for Perot. Verasdonck estimates the value of the deal at around $500 million, bat that figure stands to rise or fall with the fortunes of Europcar's basiness.

According to Verasdonck, the revenue aspect of the deal will benefit Europcar more than the cost-saving side. While the company expects annual cost redactions of about $5 million, it anticipates revenue gains of "five to t0 times that," Verasdonck said.

Europcar's Robert Verasdonck: *Europcar desperately needs the overhaul that Perot is bringing*

The IS director acknowledged that Europcar desperately needs the technology overhaul that Perot is hringing. Europcar has been running some 55 different systems across Europe and other international sites, and many of the applications do not talk to one another effectively.

Verasdonck explained that Europcar's strength has been servicing customers traveling within countries, while the incompatible systems have left support of international travelers as a weak spot.

How is it all going as Perot and Europcar approach the two-year catover point?

Perot is dismantling a system in which two IBM mainframes in Paris house several programs accessed by a maltitude of country systems, each running their own databases.

The mainframe operations are being moved to two NCR 3600 boxes and a half-dozen NCR 3550s housing a huge Oracle Corp. Oracle 7 database

Perot and subcontractors are developing and installing nameroas applications under the umbrella program known as Greenway.

Greenway's software elements include reservations, sales and marketing, Oracle financials, fleet management, yield management, decision sapport, reporting, control and cost-optimization programs, all drawing from massive databases housed and backed ap on the NCR boxes.

Perot is also developing hooks to other computerized reservation systems, some of which it has already completed.

After recovering from an early stumble that pushed some deadlines back by two months [CW, March t], the project is now on schedule, Verasdonck said.

As evidence, he noted that Europcar's reservation system went live in May, meaning the company is now asing the NCR-based platform for the daily routine of booking cars for customers.

The maiden voyage for counter systems — the computers that process rentals when customers arrive to pick up their cars — was launched on time in July, when two sites went live in Germany.

Since then, Perot has also turned on counter systems at six locations in Amsterdam and is preparing for a rapid rollout that would entail switching t,000 sites to the new counter system by Dec. 6.

An Oracle financial system is up and running in the Netherlands, and it is scheduled to come online in Belgium and the UK later this month, with installations to follow in most of the rest of Europe by the end of this year. The company's fleet control system went live in early July, although it is only useful to the sites where the counter systems are live, Verasdonck said.

The yield management system is also live but will take a year to serve its purpose because it needs historical data to perform its function: helping Europcar determine what rates work best so that cars are not sitting idle.

Potholes

Even the smallest client/server conversions seldom go off without a hitch, so it is not surprising that Perot Systems' massive Europcar project has incurred setbacks.

Among the surprises along the way, Europcar discovered that the memory management was faulty on the Oracle 7 database. Europcar Director of IS Robert Verasdonck said Oracle supplied patches late last month, and he is confident the program will provide sufficient response times.

A couple of problems stemmed from outside factors.

For one, Germany's public phone company, Deutsche Bundespost, has fallen behind in installing phone lines that would connect various locations in Germany both intra- and internationally.

Another delay came from Europcar's U.S. marketing partner, National Car Rental System, Inc., which balked at co-funding a project in which National's outsourcer, Electronic Data Systems Corp., and Perot were to have linked the two companies' systems. Verasdonck said National only recently committed funds, and work began about a year after the intended start date.

The Perot Europcar project got off to a rocky start almost two years ago when changes in development tools and business plans for accommodating Europcar affiliates pushed back deadlines [CW, March 1]. — *Mark Halper*

Briefs

IBM appointments

IBM recently named Lutz E. Hahne to be IBM vice president and general manager, Application Solutions. Hahne will report to Patrick A. Toole, IBM senior vice president, manufacturing and development. Hahne replaces M. Bernard Puckett, who in June was named IBM senior vice president, corporate strategy and development. Application Solntions is responsible for developing software and hardware for specific industries.

FileNet gains

Document imaging pioneer FileNet Corp. in Costa Mesa, Calif., announced it has made a record number of customer shipments in the second quarter, signing up nine new U.S. and t4 new international accounts.

Monsanto safety initiative

Monsanto Co. has installed a document imaging system from FileNet at one of its chemical plants as part of a project to support the federal government's process safety management guidelines and ISO 9000 quality initiatives. Monsanto is looking at a range of other applications and may eventually develop an enterprisewide imaging system, FileNet said.

CA user group meeting

The Information User Association (IUA), a Computer Associates International, Inc. user group, will hold its first annual practitioner's workshop on Oct. 19 in Memphis. The workshop is intended to enable users to share experiences in working with various CA software products.

Mortgage processing

Western Bank has purchased NCR Corp.'a Document Management System to facilitate its mortgage loan processing.

Disaster recovery moves

IBM is transferring operations of its disaster recovery center in Franklin Lakes, N.J., to Sterling Forest, N.Y. The new disaster recovery center was scheduled to open last week.

IBM's Business Recovery Services (BRS) hot-site unit for the AS/400 added capabilities allowing AS/400 users whose computers have been knocked out of service to recover their data from remote system consoles that can be located on-site rather than at an IBM facility. The AS/400 Remote Support Option is being included in the overall monthly cost of the BRS service, which ranges up to the $100,000 level. BRS, which is part of IBM's Integrated Systems Solutions Corp. subsidiary, also now supports the high-end AS/400 F95.

Library license

Concentric Data Systems, Inc. has licensed Q+E Software's Q+E Database Library software for use as the base technology in a new SQL version of Concentric's R&R Report Writer data access and reporting tool for Windows PCs. Q+E's other licensees include Microsoft Corp., Computer Associates and Lotus Development Corp.

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[redacted]

Software

Platinum Technology, Inc. has announced Platinum Package/It, a conversion, maintenance and analysis tool.

According to the Oakbrook Terrace, Ill.-based company, Package/It was designed for database administrators who want to save resources by consolidating their database request modules into packages.

Automated conversion and ongoing package maintenance facilities include an unconversion option for database administrators who want a packaged "unpackaged." In addition, the product can perform after-conversion analysis of package use and misuse and load module analysis.

Prices for Platinum's Package/It range from $15,180 to $103,150, depending on CPU size.

▶ *Platinum Technology*
(708) 620-5000

Mitchem Technologies, Inc. has introduced The Allocation Control Center (ACC) and The Space Recovery System (SRS).

The products are fully compatible with all IBM MVS systems, including MVS/ESA and MVS/XA.

According to the Madison, Ga.-based company, ACC and SRS provide an affordable way to manage data set allocation and eliminate space abends. ACC is a full-featured allocation control package, offering enhanced volume selection, direct-access storage device and tape pooling and extensive user-defined messaging facilities.

Out-of-space conditions resulting in B37, D37 and E37 abends and VSAM errors are removed by SRS.

Pricing begins at $4,500 for ACC and $8,500 for SRS.

▶ *Mitchem Technologies*
(706) 342-7600

Hardware

Xerox Corp. has introduced the Xerox 4890 HighLight Color Laser Printing System, a product that can operate up to 92 pages per minute.

The 4890 offers an enhanced electronic subsystem with increased input options, an expanded color palette, color job queue management facility and 300 dot/in. resolution.

According to the Stamford, Conn., company, the 4890 was designed for monthly print volumes of up to 2 million pages.

An on-line configuration of the Xerox 4890 costs $232,500.

▶ *Xerox Corp.*
(203) 968-3000

IBM policy

CONTINUED FROM PAGE 93

•Where possible, sharing information about recent deals among users.

However, Cassell cautioned, "you have to keep very close track of the deals, so customers don't have misleading expectations."

What one user pays for a single machine may actually be higher per-MIPS than, say, a huge account that buys four mainframes with the promise to upgrade in 18 months, Cassell said.

Still, there's no doubt the bargaining process has changed irrevocably, with IBM's no-prices policy playing very little role in that change.

"In a sense, it almost becomes IBM's responsibility to justify a price," said Frank Bereznay, manager of technical services at the Auto Club of Southern California in Costa Mesa, which buys most of its gear on the used market.

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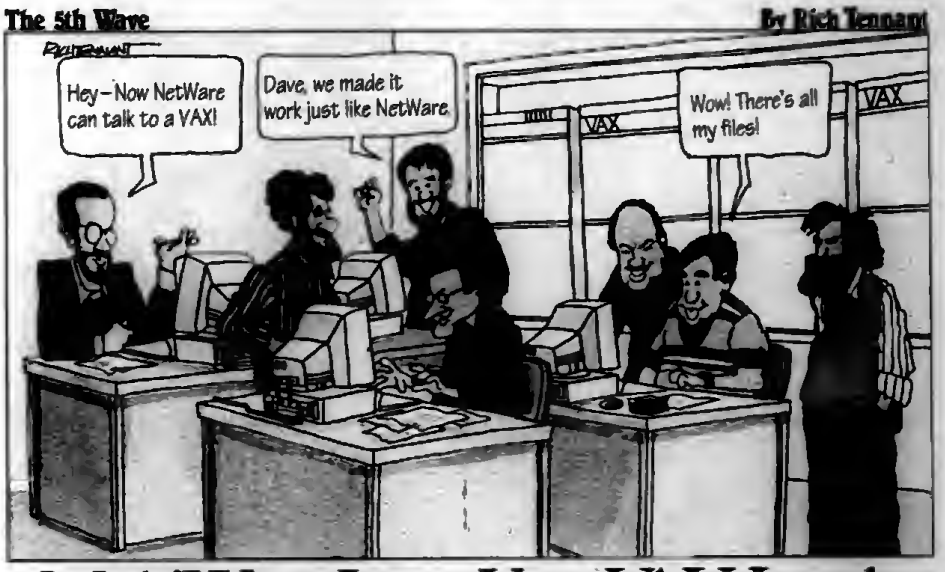
The 5th Wave By Rich Tennant



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Development tools

Death of runtime fees promises price flexibility

By Melinda-Carol Ballou

As some tools vendors eliminate runtime licensing fees, users can expect to see a gradual shift toward less expensive and more flexible licensing practices that reflect the need to distribute applications, analysts said.

Neuron Data, Inc., for instance, announced earlier this month that it is eliminating its runtime licensing fees, a move that users have enthusiastically embraced. And Progress Software Corp. will announce pricing this month for Version 7.0 of the Progress 4GL, which will no longer have runtime fees.

Some industry analysts said these moves are part of a broader trend toward higher-end development tools, following the lead of lower-end tools providers such as Powersoft, Inc., which announced it was eliminating its runtime fees earlier this year [CW, June 14]. However, others warned it will take time for additional vendors to adapt their pricing structures and that users will feel the cost elsewhere, such as in increased costs for support and services.

Heading out?

Runtime license fees may be a thing of the past if price restructuring continues

Cognos	yes	25% development fee	-	$470,000*
Neuron	no	-	-	-
Progress	no**	-	-	-
TI	yes***	-	$16,000	$16,000
Uniface	yes	10% development fee	$2,500	$30,000

*considering alternative pricing **as of later this month ***only for IEF client/server communications infrastructure

High fees

Development licenses allow developers to create applications, but in order to deploy or "run" those applications, many tools vendors charge fees for runtime licenses that can range from 10% to 25% of the price of a developer's license. Although volume discounts are available, these costs can mount considerably for those who deploy their applications across an enterprise network of hundreds or even thousands of machines.

The Aerospace and Defense Sector of Hughes Aircraft Co. in Fullerton, Calif., will be able to save a significant amount of money on deployment when Neuron Data eliminates its runtime fees, said Pat Wright, a systems engineer there.

"We do a lot of development for the military, and they are looking for ways to save money," he said. "They are trying to cut costs wherever they can, and they don't tend to [need only] one of a particular system — they want many. Especially if they like it, they may want another 300,000 [copies]."

Looking for lower prices

Even if a tool offers significantly better functionality, information systems managers who are up against a budget wall have to at least consider the lower-priced options, according to Don De Palma, an analyst at Forrester Research, Inc., a Cambridge, Mass., consulting firm.

"PC software has set the pricing pace, with desktop software in the $49 to $2,000 price range, and users now have the perception that software should cost less regardless of where it is. Users just don't want to pay runtimes, and the price deflation in the market is going to affect everyone," De Palma said. He added that at a minimum, sales cycles are being extended to include the lower-end vendors.

"Let's say you have Powersoft at one quarter the price with 75% of the functionality — anyone will stop to think twice about that proposition," he said.

On the other hand, users are likely to pay the fees if it saves them development costs.

"It would be wonderful [not to have to pay] the runtime fees because we pay an awful lot for around 150 runtime licenses," said Carro Meacham, a director at Johnson & Johnson who uses Progress 4GL. "But I would rather pay runtimes than double the cost of my development and maintenance [by using a less functional tool] — that would cripple me."

In any case, users are likely to feel the hit elsewhere. With Progress' new pricing structure, for instance, runtime prices are

Runtime, *page 108*

Database makers jump on replication

By Kim S. Nash
ALAMEDA, CALIF.

Data replication is the latest hot button for database vendors. The ASK Group, Inc. last week announced a replicator designed to duplicate and synchronize databases spread out in remote user sites. Oracle Corp., meanwhile, plans to demonstrate enhancements to its replication features next week at its annual user conference.

Taken with Sybase, Inc.'s product announcement in June [CW, June 7], one might think that users cannot wait to get their hands on this kind of technology. Truth is, while there are early adopters for whom database replication soothes a contorted client/server muscle, most database users do not need the technology right now, observers said.

"Replication techniques are good, but we don't need them for most applications," said Bill Menger, a database consultant at Conoco, Inc., an oil company in Houston. Looking broadly at the range of applications Conoco runs, replication is suitable for a specialized handful of systems, Menger said.

For example, Conoco's bulletin board-style system replicates oil drilling and processing data on ASK's Ingres databases for approximately 250 users at five sites worldwide (see story page 116). "There's no need to do similar things with many of our systems, though," Menger said, referring to applications such as accounting and manufacturing.

Nevertheless, replication is sure to become more of an issue as client/server systems grow. So, too, will the subtleties of various replication methods become more important, said Mike Heylin, an analyst at Creative Strategies Research International in San Jose, Calif.

"You'll want to know exactly how your database is going to be replicating data in order to create

Data replication, *page 116*

Fallout

Ingres/Replicator is in beta testing at 10 sites and is priced at 35% of the cost of an Ingres database until January. After that, prices will be adjusted, said The ASK Group's Russ Donovan. Translation: Prices are going up, so if you want to buy, now's the time.

Product: Ingres/Replicator. Ship date: December. Product: Oracle enhancements. Ship date: Not available, but will be part of Oracle 7 database. Product: Sybase Replication Server. Ship date: December.

Gupta links with CASE tools

By Kim S. Nash
SAN FRANCISCO

■ It's no Middle East peace accord, but client/server development companies are shaking hands with computer-aided software engineering (CASE) rivals. Gupta Corp. is the latest in a series of toolmakers to plan links between their application generation products and the front-end analysis and design offerings of old-line CASE makers.

Gupta's CASE links are part of a five-step plan called Tools Integrated into the Enterprise (TIE), announced this month at the company's annual developers' conference here.

"Generation tools [from] Gupta and Powersoft lack analysis and design capabilities that old-line CASE provides," said Aaron Zornes, an analyst at Meta Group, Inc. in Burlingame, Calif. "No one can get by alone nowadays."

TIE is a coherent effort to get Gupta tools talking to as many third-party development products as possible, said Umang Gupta, chairman and chief executive officer. He stressed that bridges between Gupta database and graphical development tools are one part of TIE. Also on the agenda are several other methods for bridging Gupta's SQLBase database, SQLWindows fourth-generation language and TeamWindows project management program with popular databases and CASE tools.

Forming a team

Rival Powersoft Corp. has also announced partnerships during the past few months with three of the same CASE vendors enlisted by Gupta: Bachman Information Systems, Inc., LBMS, Inc. and Intersolv, Inc.

Other TIE components include the following:

- Open Database Connectivity, Integrated Database Application Programming interface and other links to relational databases.
- Class libraries connecting SQLWindows to information sources, such as bar code scanners, networking gear and Microsoft Corp.'s Visual Basic development kit.
- Interfaces to scripting languages in future operating systems such as IBM and Apple Computer, Inc.'s Taligent and Novell, Inc.'s AppWare.
- Custom links requested by users.

Work has begun on each of these initiatives, Gupta said. The company built several class libraries into SQLWindows 4.0, which shipped in April. The company is also "working hard" with Novell on connections to the networking company's AppWare application development environment for building distributed systems.

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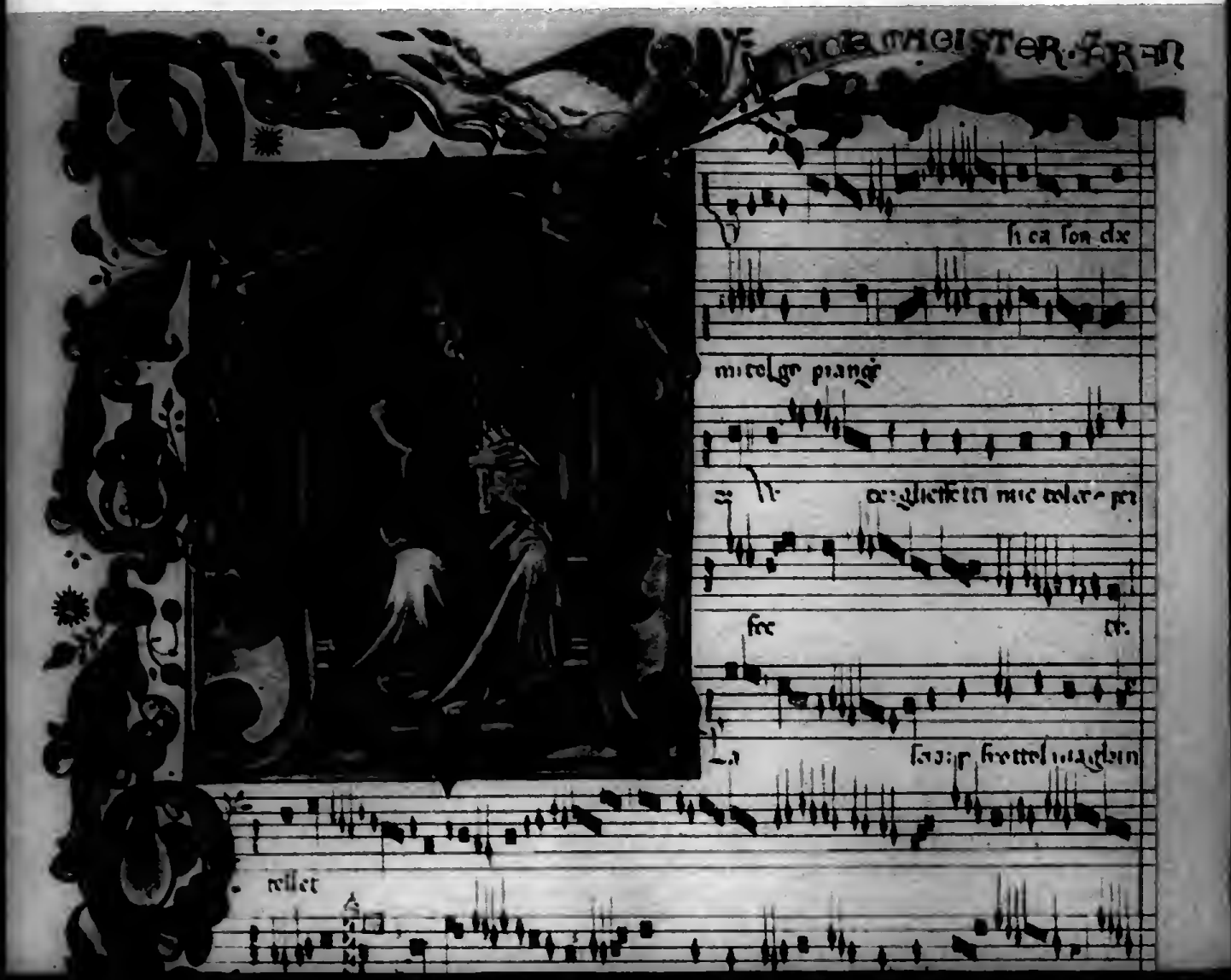

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Windows-to-DOS tools get boost

By Melinda-Carol Ballou
MORRISTOWN, N.J.

Wingate Technologies, a division of Mitech Corp., is now shipping a low-level tool set that will allow users to integrate DOS programs with Windows 3.1 services and applications directly from DOS, company officials said.

The set, also called Wingate, includes a virtual device driver that offers bidirectional pipelines to facilitate communication among multiple DOS and Windows applications, they said. The device driver provides a global memory buffer for Windows and DOS programs.

Users who communicate between DOS and Windows applications usually create their own message-based information-passing schemes that require the overhead of putting information into a file and then reading it. The direct access to data through the global memory with Wingate avoids an I/O bottleneck, according to Wingate officials.

Also available with Wingate are application programming interfaces to 36 Windows functions and support for a range of 16-bit or 32-bit class libraries and a series of Windows routines. These include WGClip for accessing the Windows clipboard from DOS, WGSpawn for launching Windows applications from DOS, WGKill for terminating those applications and WGDDE for sending data and Dynamic Data Exchange commands from DOS to Windows servers.

Corporate sites with a range of DOS applications seeking to bring in Windows said they need a seamless link between the two operating environments.

"In a nutshell, the issue is that we have DOS systems that are too large to rewrite," said Wally Bockholdt, manager of information technology at Aetna Life & Casualty Co. in Windsor, Conn. "We are looking to use Windows as an umbrella and we want to fit our DOS [applications] beneath Windows, but we need to have the applications talk to each other without a lot of hassles. We need a very seamless DOS-to-Windows transport which is fast and not apparent to the user."

Aetna is evaluating the Wingate tools. Industry analysts said the Wingate product may be useful as an interim tool until Microsoft ships Chicago, its next-generation operating system.

"There's no doubt that if you have a DOS-to-Windows problem today, Wingate sure looks like it beats rolling your own code. But over the long term, Microsoft's stated direction is to make this [connection] nearly transparent with Chicago," said Peter Kastner, a vice president at Aberdeen Group, a Boston consulting firm.

He added, however, that developers and independent software vendors confused about their long-term Windows migration strategy and whether or not to use Win32, Win32s or Win32c, "might want to spend $300 on Wingate to see how they can put a Windows face on their existing code" with minimal effort.

The Wingate developer's tool kit costs $295. Wingate offers libraries for C, C++, Pascal, Basic, and Microsoft Corp.'s Visual Basic, Visual C++ and Foxpro, among other languages.

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Runtime fees

CONTINUED FROM PAGE 105

eliminated, but the tiered, user-based pricing the company is now introducing will make the shift a "wash" for some users and may cost others more, company officials said.

Other analysts said the real push for a change in licensing structures is unlikely to come on the Unix side unless and until Microsoft Corp.'s Windows NT begins competing against Unix, and vendors such as Borland International, Inc. and Microsoft begin competing in this space.

"In the third-party 4GL market, there's no dominant player who can cause the prices to go drastically down and control the market," said Rich Finkelstein, president of Performance Computing, a market research firm in Chicago. He added that Sybase, Inc. and Oracle Corp. tend to keep their prices high but could force the third-party market prices down if they chose to do so.

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Scott H. Koehler

How to handle objects

Many companies are diving into object-oriented development. Unfortunately, as is the case with any new and radically different development approach, a certain percentage of those efforts will crash and burn. In the interest of minimizing the casualties, I'd like to describe a successful project I worked on at a large insurance company, starting in June 1991.

The system being built was a business application that models and processes the company's insurance products. This system was one part of a larger initiative, but it was a critical part that could have thrown off the effort.

What the company did to contribute to that success was approach object technology in a limited and controlled way appropriate to the political climate and the circumstances of the project. It did not jump in with both feet, declaring, "We're doing objects now," but confined the work with objects to a well-bounded application.

Although other areas later suffered from not being objectified (my assessment), limiting the exposure was proper given staffing restrictions and the need to limit risk as well as the unexplored state of object-oriented programming at the time. (In 1991, there weren't a lot of companies working with it, particularly outside the GUI arena.)

The feasibility of working with objects was tested repeatedly, before any real work began. A paper-based design was produced and evaluated. When this showed promise, a C++ prototype of a portion of the application was built to determine if the unconventional design was indeed "codable." Once the first two tests were passed, the object approach became the preferred solution, and a traditional effort that had also been proceeding in parallel was discontinued.

The project was placed in an application group, rather than an advanced technology group. Initially, a small number of people were involved, including some of the best people in the company.

These decisions were appropriate in that the personnel were bright and willing to learn new techniques and at least one member had a vision of the end product and the experience to get there. The single significant mistake was that some individuals were required to participate involuntarily.

The project was not complicated by rigid methodologies, CASE tools, advanced development environments and/or object-oriented databases. Instead, the focus was on the "core" object technology: namely, C++ business objects, their behavior, attributes and their interactions. This approach eliminated many potential time-wasters on a project where timely completion was a necessity.

Much time was spent "selling" the technology throughout the company. This was critical because to say there were skeptics would be an understatement. As an outsider, I was amazed at the extent to which thinking could be influenced by company culture. When one's understanding of the business is based on Cobol modules that have existed over the years, seeing alternative solutions is difficult.

Development followed an incremental and iterative model. Construction sometimes actually outpaced the analysis and design. Management was not particularly pleased with this result because it made it difficult to track completed phases on a project plan. In retrospect, our method of monitoring progress and conveying status could have been better, although I would argue that this more dynamic method reflects the natural way to develop software.

Although the road was not without bumps and shocks, the resulting design has proved to be resilient and extensible to newly introduced products.

Koehler is the principal at Koehler Consulting in Holliston, Mass.

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Data replication

CONTINUED FROM PAGE 105

the most efficient replication scenario," Heylin said. "It's tough to understand all the varieties," he added.

Users would need to know whether they could replicate portions of a table to two different sites. If not, then two separate tables would have to be created and maintained, Heylin said.

Ingres and Oracle approach replication in decidedly different manners, he said. First of all, Ingres/Replicator is a separate product from the database. Oracle plans to enhance replication features within its Oracle 7 database.

Next, Ingres replicates information down to the row and column level, with the ability to copy and synchronize different parts of the same table to different locations. Currently, Oracle replicates and disperses data by taking a picture or snapshot of an entire database, then sending it out at set intervals. Two-phase commit is the mechanism for regulating which sites get updated snapshots and when. Two-phase commit requires that each set of sender and receiver sites on the replication schedule electronically agrees to the data transfer.

That means networks have to be up. If Receiver A cannot commit to Sender B's signal for some reason — because of a malfunctioning network, for example — then replication scheduled for sites C, D, E and so on is held up.

Replication using the Ingres product is done on a transaction basis: Ingres/Replicator will move through a replication "to do" list, item by item, until each one is done. If network troubles prevent a connection from happening, the product puts that item aside and continues down the list, completing all the transactions it can. Replication at all locations is not waylaid by a lost connection at one, according to Russ Donovan, director of Ingres product marketing.

Transaction-based features that Oracle expects to show users next week veer away from two-phase commit functionality. The approach is a "hybrid" that includes an extension of the Oracle Cooperative Server's ability to process distributed queries, said David Knight, senior marketing manager for Oracle servers.

Generally, Oracle's changes step closer to the method Ingres employs, according to a source familiar with Oracle's plans. That way Oracle replication will no longer be restricted by unpredictable networks, the source said. Oracle declined to comment.

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Aetech, Inc. has announced IntegrAda for Windows.

The product provides Ada programmers with the ability to write Windows-based applications using Ada. IntegrAda for Windows combines Aetech's proprietary Ada language-sensitive tools with Windows interface features.

The product offers tools that include interactive error correction, point and click code generation, colored source code, the ability to cut and paste from standard Ada or Windows libraries and complete control over the editor, libraries, compiler (DOS or Windows), binder and linker, according to the Carlsbad, Calif., company.

Standard features include automatic indentation, "block commenting," real-time error detection and automatic capitalization to a chosen standard.

IntegrAda for Windows costs $495.

▶ *Aetech*
(619) 431-7714

CASE Methods Development Corp. has announced Synergy 2.1, a graphical user interface (GUI) computer-aided software engineering (CASE) management and control application.

Synergy 2.1 is a client/server-based product designed for both OS/2 and Windows environments. Synergy 2.1 was created for organizations that are looking for a vehicle to address their full development life cycles, according to the Richardson, Texas, company.

The product comes equipped with CASE/Framework, a comprehensive Information Engineering Methodology that covers a variety of development paths, including information strategy planning through production, and alternate paths for rapid application development, client/server development, maintenance and purchase product integration.

Other features include an integrated interface to a user's project management system, intuitive GUI and direct access to CASE tools such as KnowledgeWare, Inc.'s Application Development Workbench and Information Engineering Workbench and Texas Instruments, Inc.'s Information Engineering Facility.

Synergy 2.1 costs $42,000 for five users.

▶ *Case Methods Development*
(214) 644-8173

Product shorts

Rational has introduced Rational Apex, its Ada software engineering environment designed for Sun Microsystems, Inc.'s SPARC workstations. The product features program browsing, editing, debugging, compilation along with team-oriented configuration management and architectural support. Cost: $21,000 per license. Rational, Santa Clara, Calif. (408) 496-3600. . . . **Ideas, Inc.** has announced D-Make, a software development tool designed to reduce the total compilation time of Ada programs. D-Make provides integrated source file management and reporting tools that enable users to organize Ada source files into projects, generate static analysis reports on projects and monitor and log compilation results. Cost: ranges from $1,195 to $1,495. Ideas, Columbia, Md. (410) 312-2000. . . . **National Instruments** has introduced its LabWindows/C for Virtual Instrumentation, scientific and engineering software for developing instrumentation applications using the ANSI C programming language under Sun Microsystems Computer Corp.'s Solaris for SPARCstations and Windows. The product contains all of the necessary tools required to construct C-compatible test, measurement and control applications using Windows on a PC or X Window System on a Unix-based SPARCstation. Cost: $1,995. National Instruments, Austin, Texas (512) 794-0100.

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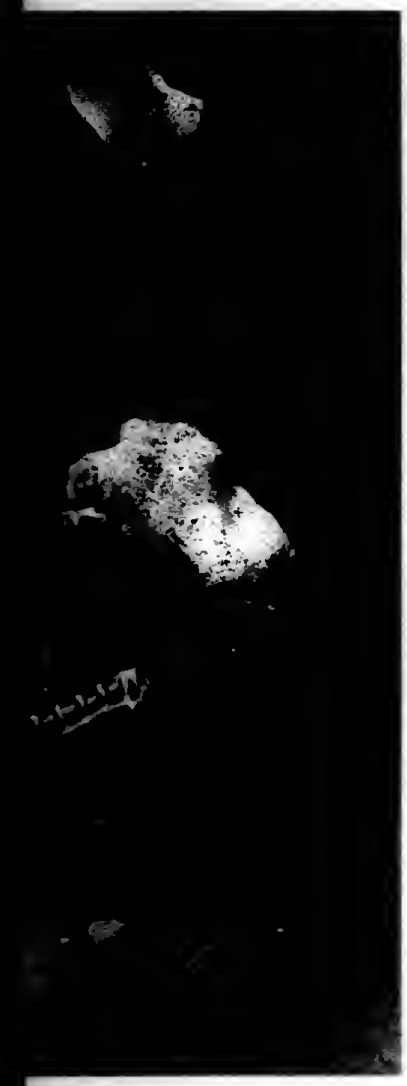

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Don't FENCE me in

Despite vendors' best pitches, one-stop shopping for re-engineering and client/server services isn't making CIOs hoot yet

BY MARK MEHLER

SHOMEK VALERIO

The one-stop shop is the Holy Grail of information systems, the chief information officer's ticket to fast, painless re-engineering and, ultimately, Easy Street.

"Who wouldn't want to bring in a single, qualified vendor to do everything?" asks Bob Habig, vice president of IS at Pepsi-Cola North America. "It's easier, you have only one voice. It eliminates the need for all coordination and logistics and collaborative coocerns. Conceptually, it's a CIO's dream."

Mel Bergstein, vice chairman of systems integration at Technology Solutions Co. (TSC) in Chicago, adds, "Buyers love one-stop shopping. It's the ultimate realization of their goal of building continuous, long-term partnerships with their software and service providers."

Smart veodors know it's an appealing fantasy, especially as more organizations race ahead with business process re-engineering, downsizing projects and client/server conversions. Many continue to take active steps toward making single-sourcing for services a reality (see chart page 120).

But there's a big problem. Despite the fervent desires of both CIOs and vendors, one-stop shopping for compoter services appears to be dead on arrival.

Mehler is a free-lance writer based in Jackson Heights, N.Y.

Matthew Bender & Co. CIO Ed Diamond is cautious about using a single vendor: 'You can always find new areas for improvement

A dozen CIOs interviewed by *Computerworld* are all but unanimous in rejecting the notion that any single vendor can be best-of-breed in every discipline.

Instead, IS executives say they would much rather experience the headaches of dealing with multiple vendors than risk getting second-rate service.

Indeed, only one CIO could recall a single example of a one-stop approach to re-engineering, undoubtedly this season's most in-demand service.

Keith Kebel, vice president of information management for the $6 billion Pharmaceutical Group of Bristol-Myers

One-stop shopping, *page 120*

One-stop shop

CONTINUED FROM PAGE 119

Squibb Co., says he sought integrated services to help the drug company re-engineer to compete better in a harsh new regulatory environment.

Computer Sciences Corp. (CSC), Price Waterhouse and McKinsey & Co. all pitched their total re-engineering capabilities, but Kebel wasn't buying.

Bristol-Myers Squibb wound up choosing McKinsey to do a strategic evaluation of the business, Price Waterhouse to do some consulting on manufacturing work flows, CSC to do some sales/marketing automation work and American Management Systems, Inc. to build a managed care information system.

"Each would have loved to be our sole source," Kebel says. "But I don't believe that any of them is good enough across the full spectrum of our [re-engineering activities] to handle the whole job."

Ed Diamond, vice president and CIO at Matthew Bender & Co., a legal publisher, says he too believes in fostering close relationships with vendors. But he also doesn't buy into the one-stop shop idea for a minute.

Bender, a division of Times-Mirror Co., brought in front-end strategist Booz, Allen & Hamilton, Inc. for a process overview. The consultancy studied every internal business process.

When it came time to select a vendor to design and implement a technical plan to support those recommendations, Booz, naturally, was among the bidders. But after evaluating at least four potential vendors — Booz, Andersen Consulting, Deloitte & Touche and TSC — Bender went with TSC.

"I thought a number of them could have probably done the systems integration portion," Diamond says, "but what we didn't want was to relinquish control."

Having TSC and Booz in at different stages, he said, provided a system of checks and balances. "Specifically, TSC, while not critiquing Booz's strategy work, came in with its own insights into the re-engineering process and found potential areas of cost saving that Booz had overlooked."

For example, Diamond says, TSC was able to pinpoint a few problem spots within the order fulfillment process where handoffs (elapsed time) could be eliminated, or at least reduced.

"You can always find new areas for improvement," Diamond says.

CIO pitfalls

While IS executives report success in adopting this "best-of-breed" approach to re-engineering, they also acknowledge the problems.

Chief among them is managing a web of ongoing vendor alliances to make sure customers get what they pay for.

Fred Forman, executive vice president of Arlington, Va.-based American Management Systems, suggests that customers not wander into the project management minefield without three critical elements — an IS department capable of coordinating many activities in parallel, a strong business mission statement and an equally solid statement of architectural standards that jibes with the business goals.

Forman and several of his counterparts further advocate several steps, including forming a senior management steering committee and a "team leaders" committee.

"If someone tells you a task is 30% complete, you have no way of knowing if they are making that number up," says Forman, citing an all-too-familiar complaint. "Typically, in a systems integration job, the first 90% is easy. But that last 10% can take forever ... there has to be a concrete way of measuring progress."

"There's no magic to it," says Bristol-Myers Squibb's Kebel, whose company has established a joint vendor/client committee that meets monthly. "It's a matter of paying attention to what's happening all around you."

Culture vultures

Nevertheless, IS managers warn that personnel issues in managing multiple vendors can torpedo even the best-laid organizational plans.

Specifically, how do you get fierce competitors like Andersen, IBM and EDS to sit in the same room, let alone cooperate and share ideas?

"Other industries, like aerospace, do very well forming consortia to sell to customers," says Doug Brockway, a partner at Nolan, Norton & Co. "A few years ago, we did a bid jointly with Peat Marwick and EDS on a job at Apple where we did the strategic architecture piece. But outside of that, we haven't seen this kind of cooperation taking place in the [information technology] consulting industry."

Habig, who is spearheading a far-reaching re-engineering program at Pepsi-Cola, has devoted considerable time to solving this problem.

"By nature, our vendors are a witches' brew," he says, rattling off a roster that includes IBM, Andersen, TSC, CSC Index, Inc. and CSC Partners and NCR Corp.

"We had to make it very clear to each of them before signing any agreement that we expected them to operationalize their client-first rhetoric. The philosophy going in has to be, "We all wear Pepsi uniforms or we don't do business together."

Some intervendor relationships are more important than others, Habig says. For example, Andersen, brought in to do some pilot re-engineering work, has not had to interact much with other consultants such as CSC Index.

But CSC Partners and TSC, both of which are deep in coding, risk assessment and other ground-lev-

One-stop shopping, *page 122*

What you should do

•**Form a steering committee.** Include senior management and representatives from user, information systems and vendor constituencies. Chaired by the chief information officer, the committee should meet at least four or five times a year. Its mission is to ensure that overall business and IS goals mesh and that users gradually assume ownership of the re-engineered process. The group should also keep rough tabs on the project's progress.

•**Create 10- to 12-person "team leaders" committees.** These should meet at least weekly to chart daily progress of each individual re-engineering project.

Again, be sure to include users, IS staffers and vendors. Monitoring should focus on deliverables such as screen designs and database records design, not tasks. Groups should also ensure that the project team has sufficient PC and local-area network support.

•**Convene a joint vendor/client steering committee** that meets monthly, tracks costs and schedules against deliverables.

Software not so simple

As enticing as the possibility of one-stop shopping is on the services end, it's doubly so on the software side.

Larry Gunther, CIO of Gillette Co.'s North Atlantic Group, says he'd love to solve, once and for all, the problem of integrating disparate vendor applications and databases — a problem that is particularly acute in the open systems, client/server realm.

However, while Gunther says he does not envision any re-engineer ever achieving cross-disciplinary best-of-breed status, he holds out some hope that a single software vendor might one day come through with a suite of best-of-breed applications that could meet, say, his entire manufacturing/distribution requirement (manufacturing resource planning, inventory, capacity planning, purchasing, production planning, etc.).

"Right now, we're beginning to see [some progress on this score] in Europe, but you've still got a problem in interfacing with multiple databases. The interfaces add complexity, and the only solutions [to data redundancy] are batch-oriented, which means for a period of time, you're not running in sync."

Bill Lodge, a project manager at Turner Corp., a construction management firm, holds out no hope for any such development in the software industry.

"No one single source is ever going to be best for every application," he says. "Excel might be the best spreadsheet, Notes, the best groupware, Word the best word processing package.... Every vendor does one thing well."

Lodge, for his part, asks for no more than software that is compliant with Messaging Application Programming interface, Vendor-Independent Messaging and other standards.

"After that, we could care less," he says. "We want to build our own off-the-shelf applications that work together as a suite."

As for suite software in general, a widely held view is offered by Computer Associates International, Inc. Executive Vice President Sanjay Kumar.

"Suite software is a marketing concept, that's all. Instead of having three application products, a company takes five and packages it in a suite. It means nothing," he says.

—Mark Mehler

What vendors are doing

Nearly everyone in the industry is trying to beef up their array of services to tempt organizations tackling re-engineering, client/server and other hot projects. Here's a quick rundown of major tactics:

•**Large integrators** such as Electronic Data Systems Corp. and Andersen Consulting have been selling themselves for years as total solutions providers, offering a range of services from strategic consulting to applications software to functional outsourcing. They will continue to do so.

•**Big hardware and software vendors** have begun emphasizing software suites they claim will provide soup-to-nuts process re-engineering capability.

High interest in re-engineering among the Fortune 1,000 is a big motivator. Vendors aim to combine numerous consulting and technical disciplines into a seamless package. That's why IBM, Unisys Corp., Digital Equipment Corp. and others are making huge investments in consulting.

Add to this growing list Oracle Corp., Microsoft Corp. and Lotus Development Corp., all angling for a piece of re-engineering action through their own fledgling consulting practices.

•**Leading strategists**, including CSC Index, Inc., Coopers & Lybrand, McKinsey & Co. and Bain & Co., have been scrambling to beef up their technical skills via internal development, acquisitions or strategic alliances.

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One-stop shopping

CONTINUED FROM PAGE 120

el implementation tasks, must work together as interchangeable parts of a task-oriented, skills-based team. Habig reports things are working out wonderfully.

Other CIOs argue that the best way of keeping a lid on cultural clashes is to designate one vendor as prime contractor, responsible for keeping everybody else in line and interfacing with the client.

Harvey Shrednick, senior vice president of IS at Corning, Inc., is a proponent of this approach. "You've got to have one face to speak to," he says. "Otherwise, it gets unwieldy."

Extra tips

A couple of additional tips on managing multiple re-engineering consultants include the following:

- Keep close tabs on scope changes in every ongoing project. Forman says it is wise to count "function points" (a metric for measuring the size of the system by tracking inputs, files, etc.).

"This is a lot easier than filling in change orders constantly and spending 80% of your time negotiating those changes with the customer," he says.

- Draw up contracts that steer away from a fixed-price mentality and emphasize risk/reward sharing. Call them "bonus pools" or "incentive clauses."
- Another example of a mutually rewarding financial incentive: joint software development deals that permit both parties to share in future revenue streams when the product is marketed commercially.
- Finally, while re-engineering presents executives with the biggest project management challenges, some CIOs say they are just as reluctant to depend on a single vendor for more routine integration or outsourcing engagements. Gerry Hogue, who manages Air Canada's financial services operations, says the airline farms out IS functions but avoids putting "all our eggs in one basket."

Air Canada has already selected Andersen Consulting to handle its revenue accounting operation but is looking at EDS, among others, to run its data centers, Hogue says.

"Even within the [relatively small world] of outsourcing," he adds, "one company can be best at applications development, another at operations. The one thing I'm most concerned about is giving any vendor an opportunity to hold a gun to our head." ■

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Networld '93. Dallas, Oct. 5-7 — Contact: Bruno Blenheim, Inc., Fort Lee, N.J. (201) 346-1400.

The College of Healthcare Information Management Executives (CHIME) Fall CIO Forum: "Critical Issues for CIOs." Longboat Key, Fla., Oct. 7-9 — Contact: Gail Arnett, CHIME, Ann Arbor, Mich. (313) 665-0000.

OCT. 10 - OCT. 16

Design/West. Anaheim, Calif., Oct. 10-12 — Contact: Karl Steidl, Reed Exhibition Cos., Stamford, Conn. (203) 964-0000.

RisCON '93. Chicago, Oct. 10-13 — Contact: National Retail Federation, Carrolton, Texas (800) 222-8734.

CLASS '93 (Client/Server Applications and Systems Solutions). New York, Oct. 12-15 — Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 394-8305.

Fourth Annual Computer Publishing and Marketing Conference '93. San Francisco, Oct. 14 — Contact: Computer Publishing and Marketing Conference, Stamford, Conn. (800) 927-5007.

National User Applications Seminar. Atlanta, Oct. 14-15 — Contact: Bellcore TEC, Lisle, Ill. (708) 960-6000.

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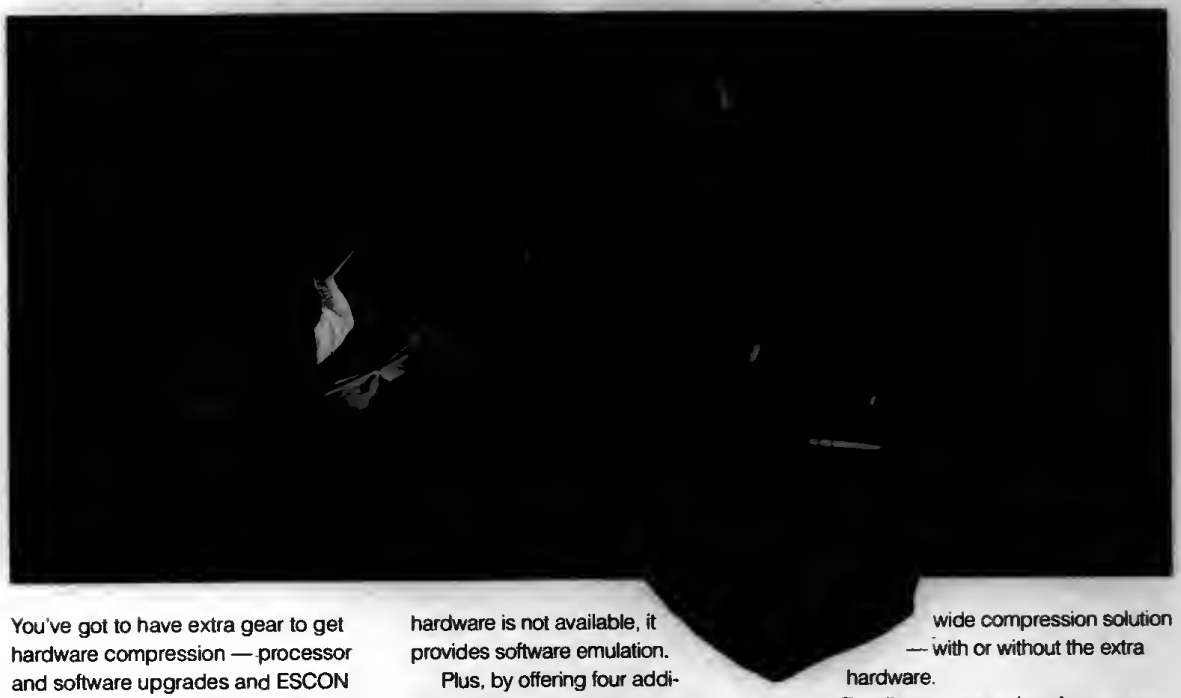

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2. **TITLE/FUNCTION (Circle one)**
   IS/MIS/DP MANAGEMENT
   19. Chief Information Officer/Vice President/Asst. VP IS/MIS/DP Management
   21. Dir./Mgr. MIS Services, Information Center
   22. Dir./Mgr. Tech. Planning, Adm. Svcs., Data/Tele Comm Network Sys. Mgt., LAN Mgr., PC Mgt.
   23. Dir./Mgr. Sys. Development, Sys. Architecture
   31. Programming Management, Software Developers
   41. Engineering, Scientific, R&D, Tech. Mgr.
   60. Sys. Integrators/VARs/ Consulting Mgt.

   CORPORATE MANAGEMENT
   11. President, Owner/Partner, General Mgr.
   12. Vice President, Asst. VP
   13. Treasurer, Controller, Financial Officer

   DEPARTMENTAL MANAGEMENT
   51. Sales & Mktg. Management
   70. Medical, Legal, Accounting Mgt.

   OTHER PROFESSIONAL MANAGEMENT
   80. Educator, Journalists, Librarians, Students
   90. Other Titled Personnel

3. Are you involved in the purchase or use of the following. (Circle all that apply.)
   a. Networking/Communication Equipment
   b. PCs/Workstations
   c. Large Scale/Midrange Systems
   d. Software
   e. Peripherals

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   40. Wholesale/Retail/Trade
   50. Business Service (except DP)
   60. Government - State/Federal/Local
   65. Communications Systems/Public Utilities/Transportation
   70. Mining/Construction/Petroleum/Refining/Agriculture
   80. Manufacturer of Computers, Computer-Related Systems or Peripherals
   85. System Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
   90. Computer/Peripheral Dealer/Dist./Retailer
   95. Other _____ (Please Specify)

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   23. Dir./Mgr. Sys. Development, Sys. Architecture
   31. Programming Management, Software Developers
   41. Engineering, Scientific, R&D, Tech. Mgt.
   60. Sys. Integrators/VARs/ Consulting Mgt.

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   e. Peripherals

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The CW Guide to Sales Automation Software

the HARDEST sell

ALL EYES ARE ON SALES/MARKETING DEPARTMENTS AS THE NEXT RE-ENGINEERING TARGET. UNFORTUNATELY, TODAY'S SOFTWARE OFFERINGS CAN ONLY DO SO MUCH TO HELP.

DID YOU KNOW... . . . that the average sales rep spends nine to 11 minutes per day on paperwork for each account? In one week, that can add up to a full day's work. *According to InfoMarketing Systems Corp., Tampa, Fla.*

. . . that the average sales call now costs more than $200, triple that in 1975? *According to Information Systems Marketing, Inc., Washington, D.C.*

. . . that CEOs name "sales and marketing" as their top concern for re-engineering business processes? *According to this year's respondents to the* Computerworld Premier 100.

BY MARY BRANDEL

No wonder most Fortune 1,000 companies today have either embarked on or are seriously considering a sales force automation system.

But there's something else you should know: People are spending $7,500 to $15,000 per salesperson to initially develop a sales force automation system and then $2,500 to $3,500 per salesperson per year for ongoing maintenance and support, according to Peter Perera of The Perera Group, a sales and marketing consulting firm in Boston. These costs include hardware, software, communications links, maintenance, loading and converting data, telecommunications, lost productivity during start-up and ongoing training and support.

That adds up to a multimillion-dollar project for most large and medium-size firms. Obviously, we're not jost talking about a scheduler, some word processing functions and a way to keep track of account histories.

With streamlined staffs, shrinking budgets and fierce competition, most companies are redefining how they target and keep customers, and that often means expanding the role of sales.

Take Sensormatic Corp. in Deerfield Beach, Fla., which manufactures electronic security devices. Its sales reps will eventually be using custom-designed PC-based electronic entry tools to monitor customers' changing internal and external demographics. They look for clues of budget growth — added doors, exits, cash registers and phone systems — that indicate a need for more Sensormatic products. They record these findings in a database that is then accessed by the marketing group.

"That's the role of the sales rep in the 1990s and beyond," says Van Mayros, president of InfoMarketing Systems Corp. in Tampa, Fla., who helped Sensormatic develop its system. "We want to arm them with tools and technologies to easily identity the range of opportunity that exists at a prospect."

The most important part, then, of a sales force automation system is its ability to increase revenue, not just count it, Mayros says.

Pfizer Corp. in New York has a similar attitude. "We don't want analytical reps out there in the field," says Kevin Butler, manager of field operations at the company. "We want people reps. But the human person in the loop doesn't do an effective job of targeting prospects." Pfizer was finding that salespeople were very good at maintaining relationships with long-standing customers hot were less adept at securing new business.

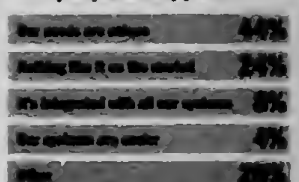
The hardest sell, *page 127*

many report in-house development

Sales force sotomation software users report the following kinds installed at their sites:

Response base: 50 users

Why do you develop your own?



■ THE ULTIMATE SALES AUTOMATION SYSTEM. Page 127.

■ BEST-SELLER ACT SCORES HIGH IN BUYERS' SCORECARD. Page 130.

■ PRING LINE SPOTLIGHTS USERS OF ROCK ACTIVITY MANAGER. Page 132.

3 STEPS in the right direction

BY MARY BRANDEL

Off-the-shelf packages can't "do it all." But many people (56% of the respondents to our Buyers' Scorecard survey) use this software as a base from which to build or as the first installed component of a larger strategic project.

What's important, then, is to be able to twist the package into a shape that supports your company's unique sales procedures. Here are three areas that deserve most of your attention:

ABILITY TO CUSTOMIZE

Whether you do it yourself, work with the vendor or hire a consultant, the harsh reality is that you will have to customize. "Most software gives you the core 80%: recording calls, electronic mail, sending and receiving reports, lists of customers and basic customer targeting," says Kevin Butler, manager of field operations at Pfizer Corp. in New York. "But the last 20% is where you have to come up with your own ideas to get a sustainable competitive advantage."

Realizing this, some software firms leave a lot of room for customization, says Van Mayros, an independent consultant in Tampa, Fla. "Take National Management Systems," he says. "It's a typical software platform but with unlimited free-form fields that the client puts in." Another approach is to provide a tool kit, such as that provided by Brock Control Systems, Inc.

What it comes down to, says Peter Perera, an independent consultant in Boston, is the extent to which you can or cannot change the data model without programming or changing the source code. For instance, Contact Software International, Inc.'s Act data model is based on "contact name"; if you have more than one contact per site, Act would store them as separate records. It's a rigid data model. With a product such as Sales Technologies, Inc.'s Snap, the data model is based on an account. That means you can attach multiple contact names and many other related, user-definable files of information. The data model is more complex and so provides more room for change and adaptability to more sophisticated data needs.

Perera's advice is to look for a product that breaks the application into two parts. This way, the functionality of the applications is separate from the database definition so you can change the database definition without touching the mechanics of the application, which Perera strongly advises against.

Another way to increase flexibility is to look for adherence to technical standards, says Barton Goldenberg, president of Information Systems Marketing, Inc. in Washington, D.C. This includes the use of the C++ programming language, graphical user interface standards such as Windows, relational database standards such as SQL and network standards such as Ethernet and X.25.

Some users say they prefer to hand the customization duty to the vendor. That's the case at Ciba-Geigy Pigments in Newport, Del. The firm was using some basic scheduling, E-mail, file transfer and report distribution modules from Envoy Systems Corp., but only as the first phase in a project to forge a close link between salespeople, technical and service laboratories and marketing.

Envoy was part of the core team that developed specifications, and "in the end was the hands that built the system," says Bob Yetto, an information services consultant at the company. Now, salespeople (who act more as consultants than as order takers) can send customer queries as "action items" directly to lab technicians. The technicians complete the assignment — determining how a product runs under certain conditions, for instance — and the results are sent to the originator's database.

Down the road, Ciba-Geigy plans to add a competitive database. But no changes to the original system will be in the firm's domain, as the source code belongs to Envoy. That's fine with Yetto, "as it fits with the company's direction."

If you choose a third party to customize your system, there are some cautionary measures you should take. For one, users say, be as exact as you can when specifying features and functionality. Otherwise, costs can run amok as each change is labeled "an enhancement instead of a bug fix," according to one user.

DATABASE SHARING

To many, the ultimate sales force system would allow marketing, customer service, telemarketing, field salespeople and corporate executives to work with the same database so that all groups are in sync. This requires the product database to have synchronization and multifunctionality.

Database synchronization

The idea behind database synchronization is for all parties to work with the same information, no matter how many changes occur to it. The customer service agent on a LAN may update a record by changing the customer's phone number or adding a note; the field salesperson may add or edit some other piece of information on the same customer. Somehow, users must get one another's changes without overwriting one another's database. "In order to do that, you need some mechanism that will synchronize — merge or consolidate — the information above and beyond the more straightforward approach of import/export," Perera says.

Unfortunately, few of the vendors do this very well yet. Most are working on data synchronization, and there are at least 16 vendors that can provide it to some extent (see chart page 127).

Multifunctional databases

It's also critical for different user groups to get their own view of the database. For example, Goldenberg says, "a salesperson's window into the application is driven by concerns like time, contact and account management, calendaring and scheduling. When they turn on the system, that's what they want to see."

If customer service turns on the same system, he says, they want the same database files, but they want insight into customer complaints with a particular product so they can be proactive about responding. In marketing, "the windows might look into market intelligence, competitive activity or marketplace trends," he adds. Executives will want to see financial performance and regional, people, revenue and market comparisons.

It is unlikely that any single sales force package will provide the desired interfaces right out of the box. But if the database is separate from the application, it is fairly simple to modify the interface and present each kind of user with the right window.

SOFTWARE THAT MATCHES YOUR BUSINESS PROCESSES

If the above sounds too good to be true, that's because it probably is. There are very few (and possibly no) exceptions to the rule that no product can perform all business functions equally well. Most are strongest in one or two areas — say, telemarketing or field sales. It's best to narrow down the most important business functions and make sure the vendor can support those really well, Perera says.

It's also a good idea to select a vendor with a good balance of technical expertise and sales/marketing know-how. "It's a real cowboy industry," Goldenberg says, noting that the average age of vendors is five to six years old, with the oldest vendors being only 10 to 12 years old. "The most successful vendors are those whose sole mission is to develop and sell sales/marketing software applications."

Some business functions have just never made it into software. Sales reps at eyewear vendor Bausch & Lomb in Rochester, N.Y., for instance, follow a typical method for expense reimbursement: They cut a check themselves and send it along with an expense report for management approval. When Bausch & Lomb went looking for a sales force automation package, they found that few supported that method, says Jonathan Witmer, project leader at the company.

Instead, Bausch & Lomb developed its own communications system and report forms. Off-the-shelf modules such as a pure contact management package will eventually be plugged in.

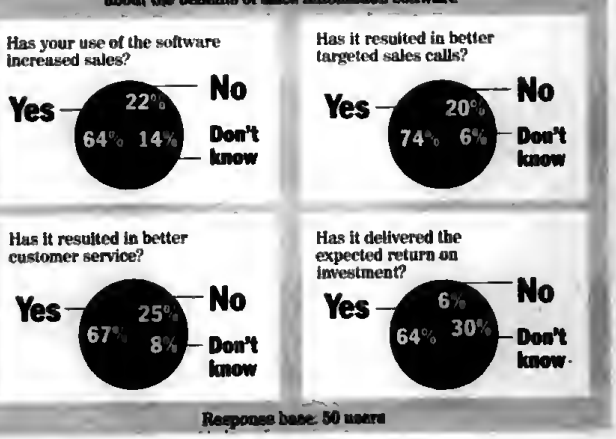
A final caution from those who have been through the sales force automation development process: Business methods and principles are susceptible to change. A user at a large pharmaceutical firm says his company chose in-house development for its sales force of close to 1,000 because the changes in the health care industry have rendered most packages obsolete. "The shift toward managed long-term care is making fundamental changes in the way pharmaceutical companies sell," he says.

Changes are more likely given the time span over which projects are implemented. Whether you buy a shrink-wrapped solution or build from scratch, make sure your system adapts well to change. ■

Assistant editor Derek Slater contributed to this story.

side effects

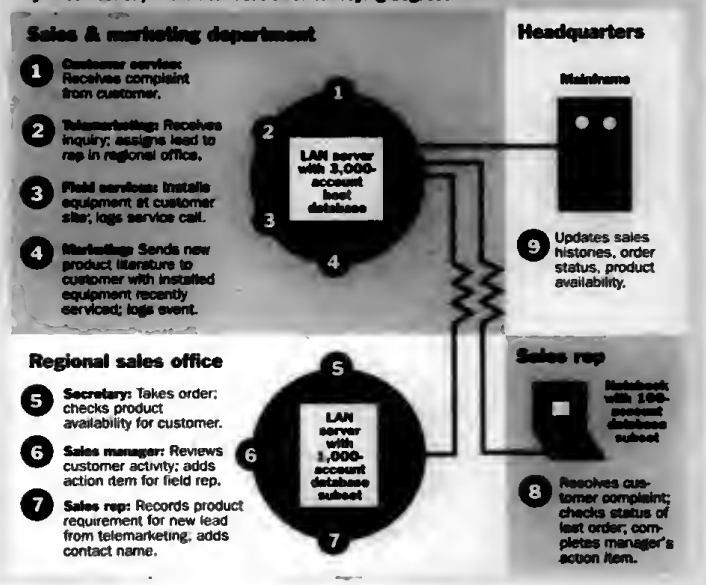
Users of contact management software were asked about the benefits of sales automation software



Response base: 50 users

the ultimate sales force system

would allow geographically dispersed users to make and then exchange changes to information with other users of the same database. This requires "database synchronization," which vendors offer to varying degrees.



Source: The Petera Group, Boston

The following software vendors claim database synchronization beyond a conventional import/export facility. Note that each provides a different level of synchronization capabilities:

- Applintec Corp.'s Telemagic, Oakland, Calif.
- Brock Control Systems, Inc.'s Brock Activity Manager, Atlanta
- Contact Software International's Act, Carrollton, Texas
- Cornet, Inc.'s Corscan, Springfield, Va.
- Data System Support's SIRS, Orange, Calif.
- Delta Business Systems, Inc.'s Profits, Lanham, Md.
- GE Information Services, Englewood, Colo.
- HWA International, Inc.'s ASIS, Memphis
- Lotus Development Corp.'s Notes, Cambridge, Mass.
- Market Power, Inc.'s Matrix, Nevada City, Calif.
- National Management Systems Ltd.'s Sales Manager's Workstation Builder, Vienna, Va.
- Richmond Technologies & Software, Inc.'s Maximizer, Burnaby, British Colombia
- SalesKit Software Corp., St. Louis
- Sales Technology, Inc.'s Snap, Manchester, N.H.
- Saratoga System's SPS, Campbell, Calif.
- Software of the Future, Inc.'s MarketForce Plus, Grand Prairie, Texas

The hardest sell

CONTINUED FROM PAGE 125

Because the company has been working with a pharmaceutical-specific system from Dendrite Systems, Inc. for five years, Pfizer has decided to customize the system further to provide a facility for prospect targeting.

"We at headquarters will feed parameters into the system — product emphasis, third-party information — and the computer will sift through it and figure out who the rep should be calling on," Butler says. "Our vision is for the computer to tell the rep who to call on, in what order, what marketing messages should be given to that particular customer. The rep would be an executor, not a planner."

Importance of integration

The most important part, then, of today's sales force automation systems is the tie-in of salespeople with one another and with key members of other departments. "The hot trend," says Barton Goldenberg, president of Information Systems Marketing, "is software that offers integrated functionality between sales representatives, sales management, customer service personnel, marketing personnel and executive personnel, thereby breaking down the traditional power kingdoms notable within sales and marketing functions."

Goldenberg describes a common scenario for people buying off-the-shelf packages: "Too often, a company goes out and buys a particular package for, say, contact management. Somewhere along the way, a customer complains about a service. The salesperson doesn't know how to log the complaint because the package doesn't do customer service. After five such occurrences, the company might end up buying a customer service package.

"Then, the customer says, 'Your competition was in here yesterday offering a 30% price reduction.' Suddenly, there's a whole new type of competition out in the marketplace, but the person who has the customer service package doesn't know what to do with that information. So the company buys a marketing automation system.

"By this time, none of [the systems] are compatible. One uses Oracle, one uses its own database, one uses Informix. One is Windows-based, one is DOS-based. The company is left with no ability to share information across departments."

Not a good situation. But guess what? Of the 600 or so packages on the market today, there's not one that you can pop in to start running a strategic sales force automation system. Most vendors have by now caught on to the selling point of sales/marketing/customer service integration. But, most experts say, the majority of products simply supply a very basic functionality, leaving the other strategic part, the part that has to be customized, up to you.

"The nature of the off-the-shelf software is very crude," Mayros says. "Even some of the largest vendors . . . simply deliver me-too products that don't help salespeople."

It's little wonder, then, that 44% of people who responded to the Buyers' Scorecard said they have built their own systems (see page 130). "The products we looked at had limited corporate value," says Carlton Shufflebarger, project manager at the U.S. Postal Service, which developed its own system based on an Oracle Corp. database. Not that the off-the-shelf products didn't have merit:

"Act [from Contact Software International, Inc.] is a leading-edge, state-of-the-art contact manager," Shufflebarger says. "It's got a lot of nice calendars, word processing, scheduling, which means a lot to the salesperson. But when you're looking at a multi-million-dollar investment, the payback wasn't there to justify it."

But building from scratch can be a time-consuming and inevitably very expensive endeavor that many companies won't want to attempt.

Goldenberg's solution is for vendors to change how they build products. In addition to being a consultant, Goldenberg is working with a related company that is responsible for a customizable product. It starts with a database platform and allows customers to build their system modularly, adding components such as customer service on an as-needed basis.

A little less than half of the companies that install sales force automation systems do accept the base functionality of a carefully chosen off-the-shelf package and build in their own functionality from there. The secret, of course, is selecting one that makes customizing possible, cost-effective and quick. ■

FOR MORE INFORMATION

In "The Guide" provides an A-to-Z [illegible] sales automation [illegible] Group [illegible] throughout the U.S. Call (617) 236-0112.

SOFTWARE TIERS

It's a sloppy process to categorize the 600-plus software packages that call themselves "sales automation software." Nonetheless, here's a rough idea of how to look at the market.

LEVEL 1

Contact management software that offers the basic call reporting, note history and word processing functions.

Most of the sales and marketing software packages fall into this category. These packages tend to do "one" business function very well and usually have predefined features, files, screens and processing routines. Because they often use proprietary database management systems or are written in their own language, they can be difficult to integrate with other systems.

The complexity and functionality of these packages vary considerably. A growing number offer some sort of customizability, from the ability to change fields in a screen to the ability to create new screens.

Sample packages: Action Plus Software's Action Plus; Contact Software International, Inc.'s Act; Richmond Technology & Software, Inc.'s Maximizer; and SaleMaker Corp.'s SaleMaker.

Cost: $250 to $500 per user. Customization and training cost extra.

LEVEL 2

Off-the-shelf software "systems" that interact with relational databases to allow more flexibility and use of more information.

This category usually runs on more than one operating system, as well as on many types of hardware. The packages are often targeted at companies with medium-size to large sales forces and support remote data uploading and downloading. Because of demand, many of today's Level 1 contact managers are upgrading to position themselves in this category, which is becoming increasingly Windows-based.

Functionality varies widely at this level. All the packages tend to be very good at the basics, such as customer name, tracking one or more contacts within that company and keeping a running log with those contacts. When it comes to more advanced things such as cross-referencing information (for instance, all customers you haven't spoken with in the past six months that live in Cincinnati), the packages vary widely. Other "added" functionality includes executive reporting and links to external sources of data.

Sample packages: Advanced Concepts, Inc.'s SalesCTRL2; The August Group's Frontline; Brock Control Systems, Inc.'s Brock Activity Manager; Data Code, Inc.'s Project Management System; Data Systems Support's SIRS; and Elan Software Corp.'s Goldmine.

Cost: $1,500 to $30,000. Customization and training may be extra.

LEVEL 3

Software that is available in prewritten but still highly customizable database-independent modules.

With these packages, the database is like a foundation to which you can add sales, marketing, customer service or executive application modules as you need them. Some of these packages offer an extensive DBMS tool kit that allows you to modify screens, fields, reports and Help menus or build your own modules without changing the source code.

Prewritten modules include functions such as account management, contact management, contract management, expense reports, business opportunities, market intelligence, telemarketing, lead tracking and customer service monitoring.

There are actually very few of these packages available, but this is where much of the market is headed, so we'll see more vendors coming out with products in the near future.

Sample packages: Information Marketing Association, Inc.'s Telemar; Information Systems Marketing, Inc.'s Homerun; National Management Systems' Sales Manager Workstation; and SalesBook Systems' SalesBook and SalesLink.

Cost: $1,500 to $2,500 per user, with a predefined amount of customization and training included. ■

Barton Goldsborough is president of Information Systems Marketing, Inc. in Washington, D.C.

Payback is difficult to quantify

BY DEREK SLATER

There's one thing you can count oo with a sales force automation project: It will cost you big bucks. Most implementors talk in terms of millions of dollars, with time investments stated in years.

That makes up-front cost justificatioo tricky — if it is possible at all. "I have my doubts that anyone can quantify return on investment," says Kevin Butler, manager of field operations at Pfizer Corp.

Just the same, Pfizer did conduct a pilot for its international sales automatioo strategy to compare performance of users and ooousers. "We're going to be spending close to $20 million over time, so we want to be damn sure of the outcome," says Gary Schmid, associate director of field force planning in the international pharmaceutical area.

Others who have implemented sales systems report a broad range of benefits and paybacks — some concrete, some intangible.

■ Better customer service

Benefits aren't always what you expect them to be. That's what Ciba-Geigy Pigments found wheo its lower-reveoue customers stopped falling off the roster. Bob Yetto, information services consultant at the company, had expected increased productivity and higher profits but not a solution to the attrition problem.

But because sales representatives were freed up to spend more time — and more effective time — on each account, they were better able to satisfy and hang on to those clients.

"The increase in time speot oo each account wasn't as much as we anticipated — maybe 15% to 20% more. But the value of that time is moch greater, more directed and effective," Yetto says.

■ Reduced cost of making a sale

Voice system vendor Executone Informatioo Systems, Inc. is one company that calculated an exact return on investment. Based on a pilot, Executone found it could slash the average cost per sale to less than one-third of its original cost via a lead-qualification system.

Prior to installing its system, salespeople made an average of 11 calls to qualify a lead and turn it into a sale.

At $250 per call — a conservative estimate, based on previous in-house surveys — that put the cost per sale at $2,750.

The lead-qualification system analyzes marketing surveys conducted by telemarketing to determine appropriate sales leads.

■ Staying alive

In highly competitive industries, it's less a matter of cost-justifying a sales system and more a matter of survival.

"We *had* to do this to maintain a level of competitiveness in terms of managing information," says a sales force automation manager at another large pharmaceutical company. "Timeliness is a key in our industry, and we were using a very cumbersome paper system." ■

Contact dominates with Act

By Kevin Burden

Contact Software International, Inc.'s Act is the best-selling contact management software package in the very popular sales force automation category (see story next page).

With over 92% market share, Act's installed base has risen on the wave of low-end sales force package sales, which grew 79% in 1992 to $31 million, according to International Data Corp.

Contact Software doubled its revenue in 1992, selling $11 million worth of Act DOS and Windows versions. A Macintosh version, released late last year, further bolstered Act's position.

A varied Act

Developed in C, Act runs on Novell, Inc. LANs with a minimum of 2M bytes of RAM for its Windows version. File formats compatible with dBase are provided, along with Dynamic Data Exchange links to Microsoft Corp.'s Word for Windows, Lotus Development Corp.'s Ami Pro and WordPerfect Corp.'s WordPerfect for Windows. The software costs $395 for a single user and $1,295 for five users.

Forty-six percent surveyed use Act primarily for Windows for contact management. Sales force management was the second most popular application.

So what do users like best about Act? They said they find it easy to use and like its performance in primary contact management functions such as tracking client contacts and building profiles.

These functions are performed through extensive predefined fields comprising data files of up to 4,000 contacts. Linked to other screens, the contact profiles also provide historical information about each client.

Act is more than a contact manager, however. It also supports functions for account and sales force management.

Users found these functions to be less impressive but still above average. Features include activity history, an order entry template and custom sales reports. Sales management features range from reporting and tracking to activity reporting.

The bottom line of a package of this sort is the bottom line. Sixty-six percent of the respondents claimed that using the package has helped them to increase the number of sales calls made, followed by 64% who have shown an increase in actual sales.

User names were obtained from non-vendor sources. First Market Research Corp., an independent market research company in Austin, Texas, conducted the survey and tabulated the results.

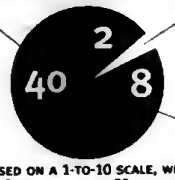
Fifty users of the market-leading software packages were contacted and rated Act in 18 different categories which were all factored into the final score.

For a complete methodology of Buyers' Satisfaction Scorecard, contact Michael Sullivan-Trainor at *Computerworld*, (800) 343-6474, ext. 229, 375 Cochituate Road, Framingham, Mass., 01701. ■

Overall score

72

Would you purchase this product again?



RATINGS ARE BASED ON A 1-TO-10 SCALE, WHERE 10 IS BEST.
RESPONSE BASE: 50 USERS

Contact Software's Act

BASED ON A 1-TO-10 SCALE, WHERE 10 IS MOST IMPORTANT
RESPONSE BASE: 50 USERS

Ease of use, database control high on users' lists

By Michael Sullivan-Trainor

Users of contact management software ask two things of their packages: simplicity in managing client lists and activities and the ability to customize according to their needs.

These low-tier applications are far less complex than the highly integrated, high-cost, host-based systems. For this reason, this is where many companies first test the waters of automation. Their simple but effective operations and the recent surge of notebook computer sales have made contact management packages the most prevalent type of off-the-shelf sales force automation software.

While Contact Software International, Inc.'s Act leads the market, other contact management packages include Chang Laboratories, Inc.'s CAT4 and Sherrer Resources' Sales Ally. Contact management is also a major component of multi-module packages such as Brock Control Systems, Inc.'s Brock Activity Manager and Sales Technologies, Inc.'s Snap.

Key components of contact management include constructing profiles and tracking client backgrounds; providing histories of clients; the ability to manipulate the screens and databases; and the ability to link client information to other features, such as a daily planner. ■

Top priorities

The 10 most important aspects of contact management software

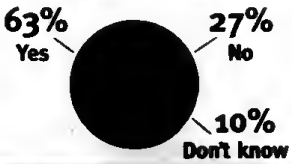
9.1	Ease of use
8.4	Ability to track when client was contacted
8.2	Ease of movement among screens
8.2	DBMS capabilities
8.1	Ability to build client profiles
7.9	Flexibility of customization
7.9	Ease of installation
7.9	Ability to prioritize activities
7.8	Responsiveness of vendor service
7.8	Daily planner capabilities

BASED ON A 1-TO-10 SCALE, WHERE 10 IS MOST IMPORTANT
RESPONSE BASE: 50 USERS

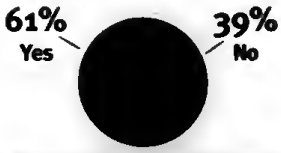
Many uses . . . many users

Although contact management software is ideally suited for the sales force . . .

Is the package being used for a large sales force effort?



Are salespeople the sole users of the software?



. . . and the idea to implement usually comes from the sales department . . .

Who initiated the decision to implement?

Head of sales	44%
End-user departments	24%
CEO	20%
IS	4%
Other	8%

. . . the application's diverse feature components make it useful for many different departments

Who are the other employees who use it?

Sales executives	25%
Customer service	20%
Marketing	16%
Other	6%
Don't know	61%

MULTIPLE RESPONSES ALLOWED

Brock Activity Manager:
Easy to customize, power-hungry

Brock Activity Manager

Computerworld's Firing Line is an evaluation based on interviews with major users at corporate and educational installations. The product under evaluation is being used in live application environments.

■ Brock Control Systems, Inc.'s Brock Activity Manager is strong in ease of use, but users cautioned that the package is expensive.

Few sales force automation packages span the multiple functions and multiple platforms necessary to provide an enterprisewide sales management system. Brock Control Systems' Brock Activity Manager (BAM) is one of the few that succeeds at this difficult feat.

BAM runs on a variety of Unix platforms and provides a comprehensive set of modules to address everything from account and sales force management to telemarketing.

Users in this Firing Line run BAM to manage their customer databases, track complaints, provide customer service, perform telemarketing and make collections. They have anywhere from 16 to 44 users working on the system. Their platforms include The Santa Cruz Operation's Unix running on a Compaq Computer Corp. 486 server, with DOS 386-based laptops in the field; AIX running on a Bull DPX, with PCs and dumb terminals; and Sun Microsystems, Inc.'s SunOS running on a Sun server, with 386-based laptops.

All evaluators were using BAM Version 7.0 or greater. They had three months' to three years' experience with the product. The companies involved were three manufacturers and one transportation firm.

The format for this Firing Line was developed with the assistance of Howard Rubin Associates and Technology Investment Strategies Corp.

Ease of use

Dealing with a range of user experiences, the evaluators gave BAM strong ratings in this category, except one user who struggled with hardware and configuration problems.

Manufacturer 1: "We've had internal problems with bugs and hardware problems. On our laptops we found we couldn't run both our demo applications and our sales force software. We had a number of problems with the synchronization routines. Switching between Windows and DOS makes the system a little clumsy to use for phone work. It's been a battle."

One of the main issues for the manufacturer was an initial attempt to run BAM on a Digital Equipment Corp. VMS-based VAX. In addition to technical problems, Brock had too few VAX accounts to provide sufficient VMS support, the user said. The firm ended up switching to Unix with an associated change in hardware.

By contrast, the only complaints from other users were the need to provide a hot key to switch between BAM and in-house systems and that the number of features made it a little

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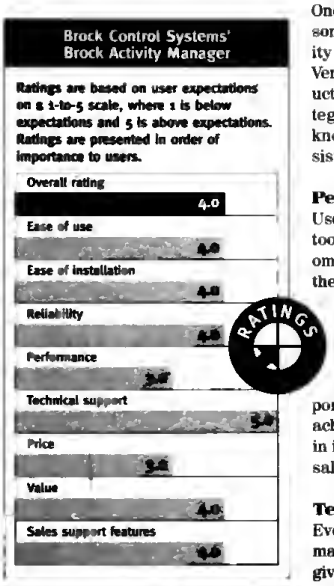
more difficult to manage than a single module package

Ease of installation

The VMS problem also colored Manufacturer 1's view of installation, but he agreed with other users that the Unix installation went smoothly.

Transportation: "It took us about 250 man-hours and the bulk of that was interfacing with our existing system."



Reliability

One user found runtime errors in some of the utilities of the Field Activity Manager (FAM) portion of BAM Version 7.4 that would bomb the product. Training was also needed for integrating FAM with Unix. Lack of knowledge caused some data inconsistencies, Manufacturer 3 said.

Performance

Users found 386SX-based hardware too slow for BAM. Brock's initial recommendation of that platform caused them to purchase 386-based laptops that need to be upgraded before running the latest version of BAM, Version 8.0, which requires a 486-based system.

On the other hand, the transportation user was pleased with achieving subsecond response time in integrating BAM with his in-house sales systems.

Technical support

Even the VMS user gave this area top marks. "They bent over backward to give us what we needed," he said.

Price and value

Users were satisfied with the price and value. The transportation user said his company budgeted $150,000 for in-house development and was able to obtain BAM for $103,000.

The company also exceeded its projected 25% productivity improvement estimate. It is gaining 30% to 35% productivity improvement, plus added functionality.

Manufacturer 3 said his company did not anticipate the high cost of maintenance and upgrading due to lack of experience with large software applications.

Sales support features

Users found many features that were very useful and others that were of no help. Included among the most useful were the FAM package, prospect tracking with notation and the ability to synchronize data on different systems.

Least useful were FAM's appointment scheduler and call queues for calling campaigns. ■

Brock responds

The following are Brock Control Systems' responses to issues raised in this evaluation:

▶Ease of Use: Brock made a decision to stop offering new releases on VMS when Informix Software Corp. announced that Informix 2.1 would be its last release supporting VMS and that it was discontinuing support of that platform.

Brock is still providing hot-line support to remaining VMS customers but has encouraged those VMS customers to move to Ultrix.

The last Brock release supporting VMS is Release 7.4.

▶Laptop performance: Especially in a Windows environment, Brock recommends a minimum laptop configuration of a 486DX, 12M to 16M bytes of RAM, a 100M-byte hard disk, a mouse and an IBM Video Graphics Array monitor.

▶New version: BAM has been available for both Windows as well as Novell, Inc. LANs since April 1.

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Memory ☐4MB ☐8MB ☐16MB ☐32MB ☐64MB

Hard disk ☐170MB ☐240MB ☐340MB ☐440MB

MINITOWER (8x6)

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Memory ☐4MB ☐8MB ☐16MB ☐32MB ☐64MB

Hard disk ☐170MB ☐240MB ☐340MB ☐440MB

EISA DESKTOP (8x6)

Processor ☐486DX2, 66 MHz ☐Pentium, 60 MHz

Memory ☐8MB ☐16MB ☐32MB ☐64MB

Hard disk ☐170MB ☐240MB ☐340MB ☐440MB ☐540MB SCSI-2*

EISA TOWER (8x12)

Processor ☐486DX2, 66 MHz ☐Pentium, 60 MHz

Memory ☐8MB ☐16MB ☐32MB ☐64MB ☐Other ___MB

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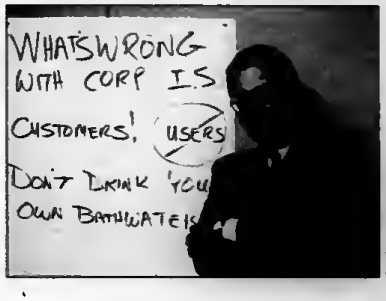

BY LARRY RUNGE

RECIPE FOR A POOR SYSTEMS GROUP: A NARROW PERSPECTIVE, SLAVISH DEVOTION TO MEANINGLESS MEASURES AND THINKING LIKE A MONOPOLY

These areo't the good old days for information systems. Take, for example, the national retailer that outsourced its entire IS department to Electronic Data Systems Corp., or the large Chicago bank that outsourced its IS group to IBM. Or there's the story a frieod of mine at an outplacement company told me about two chief information officers who lost their jobs — because their CEOs couldn't understand what they were talking about!

We, as the chief information overseers in our companies, bave to take this bloodletting to heart. It's time for a little introspection. It's time to find out what we are doing wrong.

Here's what I think:

WE THINK IN TERMS OF "USER," NOT "CUSTOMER." A user is someone who ignores Nancy Reagan's plea to "Just say no" to drugs and says "Yes!" instead.

Customers, oo the other hand, are a different breed. All they ask is that we do our job well and efficieotly. Then, in return, they pay our mortgages, buy our groceries, help seod our kids to college and give us mooey to buy that boat or stereo we've always wanted.

Frankly, if our customers are willing to pay for the good life we enjoy in return for a bit of programming, then they deserve our respect and our best efforts to get them what they want, when they want it.

WE DON'T BASE OUR MEASUREMENT AND REWARD SYSTEM EXTERNALLY, ON THE CUSTOMER. Most of our measurements are focused internally, on things such as schedules, lines of

Narrow perspective, *page 140*

Runge is CIO at Wheels, Inc., a fleet leasing and services company in Des Plaines, Ill.

COUNTERPOINT

WHAT'S RIGHT WITH US?

"All we talked about in the '70s and beyond — the fact that we should become less of the technician and more of the businessperson — has come to pass. When I meet with my peers these days, I notice they have really taken past criticism to heart and have become darn good businesspeople who happen to know a lot about technology."

Dick Lester
Vice president, information services
Associated Grocers, Inc.
Seattle

Narrow perspective

CONTINUED FROM PAGE 139

code and so forth. These measures ignore the customer completely. We are drinking our own bathwater.

Admittedly, many corporations force this type of thing on the IS group, but we need to do all we can to change that thinking. For example, I know of a situation in which a financial services company — the leader in its marketplace — began re-engineering an ordering system crucial to its business. The system handled about $1.2 billion worth of orders per year.

IS figured out a budget and set schedules. But the budget and schedules were cast in concrete, without regard to the customer. The project ran into difficulties, of course.

The head of systems was in a quandary because she had a window to hit, and if she missed it, she would have to delay implementation for several months — at a cost of $200,000 for a six-month period — until the peak ordering season passed. And she could kiss off her incentive bonus because meeting the schedule was one of the areas in which she would be measured.

Yet the head of systems and everyone else in her organization knew the new system wasn't ready to go in.

So what happened? She shoehorned the system into production, of course. The result was an error-ridden and failure-prone system that takes twice the time and twice the people to process an order, compared with the old system. Clients dropped like flies.

Did the head of systems make the right decision? From the perspective of her bonus and the mortgage payments on her house, yes. From the perspective of the measurements her company had imposed on her, yes. From the perspective of the customers, a definite no.

Our measurements and rewards have to be based on meeting the customer's needs. Anything else will be counterproductive to our goal of serving the customer.

WE DON'T THINK OF A QUALITY PRODUCT AS A CUSTOMER'S RIGHT. Our customers have a right to a quality product. Unfortunately, quality is often the last thing our profession considers or measures. We tend to give more weight to schedules than to quality, yet what good is it to deliver something on time if it doesn't work?

I hate to say this, but many of us have a double standard: one we apply to our own performance and one we apply to everyone else's. The attitude is, "Toss it over the transom; if it has problems, they'll find them and send it back."

Excuse my bluntness, but only a fool would want his customers to serve as his quality control department. There's no faster way to put ourselves out of business.

This situation brings to mind my first brand-new car. It was so riddled with problems, I had to get it fixed again and again, even after the warranty expired. I'm on my eighth car since those unhappy days, and not one of them has come from the manufacturer who did such a shoddy job on that first car. Frankly, I'll never buy a car from those turkeys again.

We in corporate IS have had it easy. We've had a monopoly. Our users haven't had any choice but to buy our products, regardless of how shoddy or poorly supported they were.

This is no longer the case. There is an entire outsourcing industry more than willing to do a better job for our customers than we can if they only get the chance. If we demand that our customers serve as our quality control department, the outsourcers will get their chance.

WE ARE NOT REALISTIC ABOUT ESTIMATES AND SCHEDULES. Let's face it, software estimates are just that — estimates. Unfortunately, systems folks have a tendency to ignore this uncertainty when presenting schedule and budget estimates to upper management. Part of this is because of a tendency toward excess optimism on the part of the systems organization; part of it is because of the decided lack of enthusiasm that business leaders exhibit for "hedged" or "qualified" estimates.

The inaccuracy of the estimating process and the reluctance of the system organization to admit it aren't the only problems. What complicates things further is that many senior managers believe software estimates are a self-fulfilling prophecy. Regardless of how large the estimates, we will require all of the available time to do the job. Give us six more months to do the job and we'll take six more to do it.

Building a system is not the same as putting new sod in the front of company headquarters. We must estimate accurately and then make sure the business leaders understand that predicting software schedules and budgets is not unlike predicting the weather. It's not that the bear dances well but that it dances at all.

WE DON'T ALWAYS PROVIDE THE BEST POSSIBLE PRODUCT AT THE BEST POSSIBLE PRICE. This again goes back to the fact that corporate IS, as an industry, has been able to depend too long on having a captive market for our products. We've gotten lazy, and our lethargy is encouraging company after company to outsource its entire IS organization out of sheer frustration.

While working at NASA on the shuttle program in the early 1980s, I decided I would write a few computer games, get rich and spend the rest of my life sitting on a Galveston beach drinking Mai Tais. It was then that I learned an invaluable lesson: in an open market, it's not enough just to have a product. You have to have a product that's better than everyone else's. Otherwise, your customer will buy the competitor's product and not yours.

That is not a lesson well-learned in the corporate IS world. Here, it doesn't matter what the customer wants. He has to take whatever we give him, and he has to wait until we get around to delivering it. And if it doesn't fit his needs? Well, sorry, but the budget has already been spent and you're just plain out of luck.

Holy computer chips, Batman, no wonder so many CEOs are firing their CIOs and then outsourcing the entire IS organization!

No longer should we depend on a captive market, a customer that has to accept whatever we deliver, whenever we decide to deliver it. Our customers should be allowed to look on the open market for better values than we offer. Why not? We have nothing to fear if we're providing the best product at the best price.

We should be able to do that. We have a lot in our favor: Most of us don't have to make a profit, we're close to our customer base and we understand the business. The only thing working against us is 30 years of doing it the wrong way.

The old ways and habits are no longer appropriate for the world we live in today. Were they ever? Most were an offshoot of the arrogance we've developed through having a captive market for our wares. We have to change with the times, regardless of how successful we were in the old world. ■

COUNTERPOINT

WHAT'S RIGHT WITH US?

"What we've got going for us now is experience. We've been caterpillars and have the opportunity to become butterflies. We're metamorphosizing! We are coupling our 25 years of legacy systems experience with the new tools of today — i.e., client/server. We're better armed and experienced. It's never been a better time to be in this profession."

Jack Van Antwerp

Allan Ditchfield
Senior vice president and CIO
Progressive Insurance
Cleveland, Ohio

"We're pushing a lot more information out to users these days with LANs. This has increased user/IS interaction in that users need the expertise that IS has to manage the LAN. This is expertise that was cultivated with mainframes. There has been a coming together of the user community and IS because of the downsizing phenomenon."

Roger Harris
Manager, data center
Ross Products Division
Abbot Laboratories
Columbus, Ohio

"We as a profession show a great ability to do our own introspective analysis and seek ways to improve the way we provide service to our customers. We're much more process-oriented in our thinking now; we look at improving the business work flow."

Norm Ziesman
Systems director
Aetna Information Technology
Minneapolis

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Computer Careers

is SELF-STUDY right FOR YOU?

Students using computer-based training and other self-paced methods are happy with the results but often need additional hands-on experience

grading the resources

By Alice Bredin

SELF-STUDY packages appear to offer it all. They're inexpensive, flexible and comprehensive. But do they really teach what's necessary when it comes to heady technologies such as networking?

The verdict from trainers and students is while self-study packages — books or computer-based training — are comprehensive, they often require supplemental classes and hands-on experience.

"[Self-study] is a good introduction and refresher," says Ellen Hersh, training and education analyst at International Data Corp., a Framingham, Mass., market research firm. "But it doesn't have human interaction to bounce ideas around and to ask questions of."

Even so, many information systems departments are using self-paced training as a first step in teaching a technology. Dale Jenkins, a technical training coordinator at Advanced Technology Services, Inc. in Peoria, Ill., prepared 40 of his field service engineers for Novell, Inc.'s Certified NetWare Administrator test this way.

"No one comes out of the self-paced training with any knowledge gaps. However, classes are good reinforcement," Jenkins says. For instance, students can see firsthand how to set up privileges, establish security levels and investigate connections such as Ethernet, "which they can't get otherwise," he adds.

One student, Jose Colon, a senior customer service engineer at Olivetti North America, Inc. in Spokane, Wash., recently spent three days completing the first part of a Novell computer-based training program designed to teach NetWare v3.11. He has yet to start the second half, which simulates hands-on work, but he says he has learned the basics. "It didn't gloss over any details, but I still need to learn how NetWare actually works and makes things operate," he explains.

Classes and hands-on experience expose students to situations not always covered in self-paced programs, including unusual error messages in system setup and how to change variables, says John Merlino, a training account manager at East Coast Network Training Services in Lincoln, R.I. Computer-based training "is limited to a certain amount of information because of time and cost limitations on making [programs]."

Paul Thomas, president of Blue Whale Technologies in Bay Point, Calif., agrees. By actually working on NetWare, Thomas, who is preparing for the Certified NetWare Engineer test, has picked up details on what error messages to expect and how to work out quirks that are difficult to learn and remember. However, the levels of understanding beneath NetWare's surface still elude him. "All of the information is probably in the books, but it's 50 pounds of books," Thomas says.

Bredin is a free-lance writer in New York.

Training aid

In a survey of 1,800 companies with more than 100 employees, 43% use computer-based training. The primary use is for teaching technical skills.

Source: Training Magazine, Minneapolis

Formal training not required

[illegible] Atlantic, for instance, has [illegible] successes [illegible] self-paced NetWare study [illegible] employees with hands-on [illegible] as service technicians, maintenance technicians and even LAN administrators who are not formally [illegible] in the hardware details. "People who understand the setup but don't know the terminology and all the commands do well," he says. "For them it's a chance to learn or review the specifics."

—Alice Bredin

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WINDOW SERVICE

Throw out traditional troubleshooting and support methods. Windows has its own, and they're very different from single-tasking environments.

to

By Jeff McGroary

IF YOUR COMPANY is moving from DOS to Windows as its standard desktop environment, be forewarned. Your troubleshooting duties just got harder. Most support technicians will tell you that Windows is more difficult to support than single-tasking environments, especially in the detection of software problems.

Unfortunately, previous DOS support experience is of little help. Where DOS is static and single-task-oriented, Windows is dynamic and supports limited multitasking. Where DOS is a character-based operating system, Windows supports a graphical user interface.

Of these differences, it is critical to understand the multitasking concept and its implications for configuring system hardware and software troubleshooting.

The following three areas should concern new Windows troubleshooters the most. If you have a PC capable of running Windows, you might even consider purchasing a copy of Windows to get a feel for the environment.

TROUBLE-SHOOTING SOFTWARE

Diagnosing software problems on a Windows workstation is undoubtedly the most difficult skill to hone. If a DOS workstation locks up, the error most likely occurred in the single DOS application. With Windows, it could be in any of the applications running at the time.

First, you must develop the ability to isolate the problem application and determine whether it is a software error or a hardware problem in disguise. You'd be wise to get to know the utilities that address this issue. Microsoft Corp.'s Dr. Watson, for instance, when added to a workstation's Windows Startup group, will look for and trace the events leading up to any errors.

However, Dr. Watson does not always uncover the exact source of the problem. In this case, try one of my favorite tools —Bounds Checker for Windows from Nu-Mega Technologies, Inc. in Nashua N.H. Once a problem has been isolated to an application, Bounds Checker tracks every move of the application and reports the precise locatinn of the error.

WORK-STATION TUNING

The single-tasking DOS environment requires little system tuning. To optimize a Windows workstation's performance, however, you must tune the Windows software to take full advantage of any given hardware configuration.

A support technician must be intimately familiar with WIN.INI (Windows initialization) and SYSTEM.INI (system initialization) files. Each contain switches and settings used to tune the Windows environment for a particular machine. Although these ASCII text files share a common format, they have different purposes, including the following:

- WIN.INI is primarily used to record user preferences. Most changes made via the Windows Control Panel, such as a user's choice of system colors, are stored here.

Applications also use WIN.INI to store information. If your Windows environment or individual applications are erratic, it is often a sign of a corrupted WIN.INI file.

- SYSTEM.INI contains hardware-related information. For example, the SYSTEM.INI file identifies the video, mouse and network drivers used for a given configuration. It does not change as frequently as the WIN.INI file and is most often updated by the Windows Setup program.

Problems with the video display, mouse operation and network connections can often be traced to incorrect SYSTEM.INI settings. To determine how a specific application makes use of both of these files, check its documentation.

BOOKS AND RESOURCES

HARD-WARE SPECS

The performance and smooth operation of a Windows workstation is much more dependent on its hardware configuration than is a DOS machine. A good Windows support technician must configure the workstation to meet all processing requirements.

Under DOS, this task is relatively simple. You determine the requirements of the most demanding application and provide enough random-access memory and disk space to handle it.

With Windows, however, any combination of applications may be running at any given time. Determining the optimum hardware configuration under Windows usually requires performance benchmarking on several hardware configurations.

Although the hardware components for a Windows workstation will essentially be the same for a PC running DOS, there will be more of them. DOS-based PCs with 1M to 2M bytes of RAM will be replaced or upgraded with PCs outfitted with at least 4M bytes of RAM.

Disk drive requirements will also increase. A 70M-byte hard drive is probably sufficient for a DOS PC, but Windows workstations require capacities of t 70M bytes or higher. A mouse will also become standard equipment.

McGroary is a software developer and president of The Aristos Co., a graphical software development firm in West Hartford, Conn.

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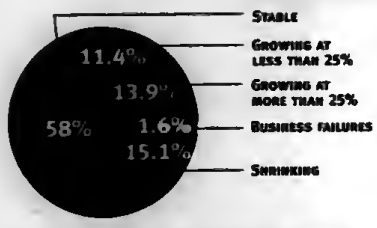

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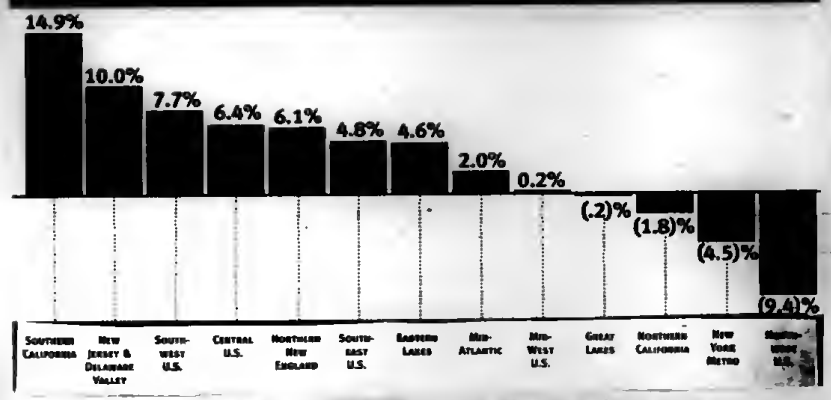

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Required Qualifications:

- Master's degree preferred, bachelor's degree required
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- Substantial knowledge of microcomputer software (operating systems and applications) and hardware.

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- Significant experience configuring, implementing and maintaining LANs in an enterprise environment.
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Applications must include a letter of interest which addresses the position's requirements and desirable qualifications, a current resume, and the name, address and telephone number of three professional references. To assure consideration, applications should be received by October 8, 1993. Application screening will begin October 11, 1993 and continue until the position is filled. Applications should be addressed to: Mr. Ray Dutton, Director of Computing and Telecommunications Services, Emporia State University, Campus Box 4018, 1200 Commercial Street, Emporia, KS 66801-5087.

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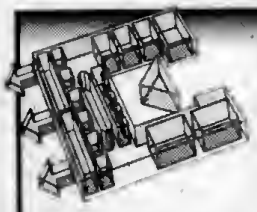

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A safer route to client/server

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By Alan Radding

WHEN IT COMES TO client/server computing, low cost and low risk are highly relative terms. Client/server is never simple and easy. It's a different approach to application design and development that involves new tools and technologies and requires substantial retraining. Still, the following strategies allow you to wet your feet without betting the company or taking the risk of bringing your career to a crashing halt.

Relational database

+ Best choice if planning to expand client/server efforts

− Most risk; requires commitment to a data architecture

"We recommend companies get into client/server through database products like Informix and Oracle," says Tom Nolle, president of CIMI Corp., a technology consulting company in Vorhees, N.J. Nolle advises his clients to standardize on one of the leading server-based databases and install a gateway to the host for the purpose of accessing host data.

This model, he says, offers the most general utility when you are ready to expand your initial client/server effort.

Jens Pedersen, vice president of information systems at Great-West Life & Annuity Insurance Co. in Englewood, Colo., had this strategy in mind when his company standardized on Oracle Corp.'s database and tools running on a Sun Microsystems, Inc. platform four years ago. He conceived a small-scale client/server computing project as a way to begin moving applications off the mainframe.

"We were looking for a low-cost implementation compared to our mainframe," Pedersen recalls. However, the effort quickly snowballed when a major application involving 200 workstations suddenly came along.

To avoid getting in over your head, focus initial efforts on small decision-support applications using snapshots and extracts of host databases. "People decide to access production databases, and that just increases the problems," says Lynn Berg, program director of mid-range computing strategies at Gartner Group, Inc. in Stamford, Conn.

Front-end tools that straddle both client/server and traditional development

+ Least risk; easiest to implement

− Least gains; expansion is limited

"You can get your feet wet with tools like Microsoft's Visual Basic," advises Judith Hurwitz, president of Hurwitz Consulting in Newton, Mass. This approach allows the company's developers to experiment with client/server technology and gain experience on a small scale using familiar technology.

"There are a lot of tools if you want to get started on the client side. Even advanced spreadsheets from Borland and Lotus have direct SQL access capabilities," Berg notes. With this approach, an initial low-risk foray into client/server computing might involve little more than a Lotus Development Corp. 1-2-3 application with a generic data access add-on tool to access a remote database.

The danger with the tool-based approach, however, is scalability. "You might build one application but then have trouble expanding it," Nolle says. By focusing on the client side of client/server computing, companies may fail to implement a robust back-end database architecture.

Off-the-shelf client/server-enabled software

+ Eliminates research investment in nonstrategic applications

− Limited product selection; retraining still required

"Off-the-shelf products are a way to jump-start client/server development," says David Klimetz, manager of financial control systems at Federal Express Corp. in Memphis. Federal Express opted for Duo & Bradstreet Software Services, Inc.'s financial software enabled for client/server computing. Fixed Assets was chosen as the first application, he explains, "because it was a low-risk way to start." The application involved only a few users and a limited amount of daily activity.

Similarly, Associated Grocers, Inc. in Seattle turned to Lawson Software's financial software "as part of our strategy to get to client/server computing," reports Richard Lester, vice president of information services. Although the company is painstakingly developing most of its client/server applications from scratch, the availability of Unix-based, client/ server-enabled core financial software saves a lot of work. "Everything we do now is client/server, but we never want to write a general ledger or payroll application from scratch," he says.

Unfortunately, the product selection is limited to a few core applications, and you still have to standardize on your database architecture or "you'll end up with a hodgepodge of different databases," Nolle warns. Off-the-shelf software also doesn't eliminate what many believe to be the biggest cost in client/server development retraining. "You still have to retrain everybody because you are going to have to modify and support the off-the-shelf application," Klimetz says.

If you want the benefits of client/server computing, sooner or later you will have to take the plunge. The best way to reduce the risk is to go slow.

Client/server computing isn't an all-or-nothing proposition. You can add client/server applications to your existing application portfolio, learn as you go and gain the experience to tackle the big, mission-critical production jobs. At that point, it won't be such a high-risk undertaking.

Radding is a free-lance writer in Newton, Mass.

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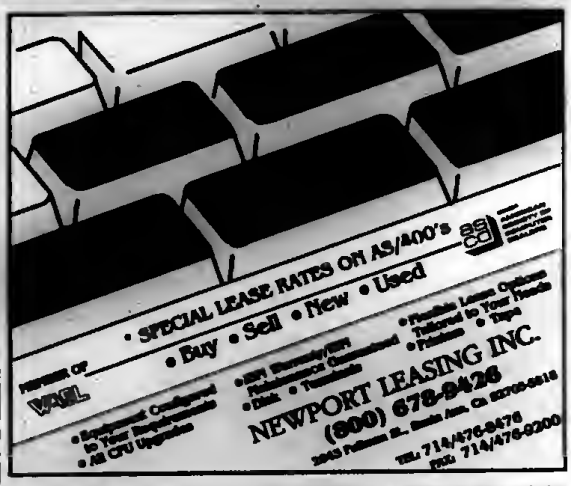

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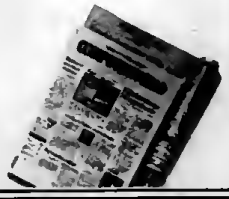

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Friday Stock Ticker

Gainers / Losers

Percent

Gainers		Losers	
Cray Computer	30.8	Intelligent Info. Systems	-19.4
NetFrame	26.9	State of the Art	-17.6
Microcom Inc.	26.3	Adobe Systems Inc.	-13.0
General Datacomm Inds.	15.5	Cheyenne Software Inc.	-12.0
Standard Microsystems Corp	13.9	BGS Systems Inc.	-11.7
MathSoft(L)	13.5	Chips and Technologies	-11.4
Amdahl Corp.(L)	11.4	Group 1 Software	-11.1
Telematics Int'l Inc.	11.1	Iomega Corp.(L)	-11.1

Dollar

Gainers		Losers	
Chipcom Corp.	3.50	Intelligent Info. Systems	-6.25
NetFrame	3.50	Digital Equipment Corp.	-4.25
Standard Microsystems Corp	2.63	Cheyenne Software Inc.	-4.25
3 COM Corp	2.25	Progress Software Corp.	-3.63
Atmel Corp.	1.88	SynOpsys	-3.63
Platinum Software(H)	1.75	BGS Systems Inc.	-3.50
General Datacomm Inds.	1.63	American Power Conversion	-3.00
EMC Corp.	1.63	Newbridge Networks Corp.	-2.88

[redacted]

Analysts debate storage rivals

EMC Corp.'s (EMC) stock has burned up the track this year on the strength of the company's Symmetrix mainframe disk arrays and Harmonix arrays for the AS/400. **Storage Technology Corp.**'s (STK) stock, on the other hand, has floundered as big-iron shops await its Iceberg product. The company's massive mainframe disk array, announced in January 1992, is more than a year late. StorageTek installed a test system in its own facilities this summer. Iceberg is expected to ship early next year.

Joseph Payne
Senior vice president, Kemper Securities, Inc.
EMC has been on a product cycle run with the Symmetrix 5500 [mainframe disk array]. The question is, is it going [into sites] displacing IBM 3990s, or is it going in as a supplemental high-volume application, which is only about 10% of the market? Is what they're doing quickly filling their available marketplace? I haven't found any massive displacement of 3990s.

My next question is, what is the product life cycle of the 5500, [and] when in 1994 are other products going to be featuring continuous operation? Iceberg is an 18-wheeler if you're going to be moving massive amounts of data. It will be self-tuning, self-optimizing and more than fault-tolerant.

This quarter will be a rough quarter for StorageTek, but they have something new coming in every segment of the storage hierarchy. I like the breadth of their product line. (Editor's note: StorageTek fleshed out its line in May when it acquired Amperif Corp., which makes RAID-5 mainframe subsystems priced lower than Iceberg.)

William Miller
Research analyst, Rutherford Brown Catherwood, Inc.
This quarter EMC has a possibility of earning 35 cents per share. That's knocking the cover off the ball. As long as earnings momentum continues, the stock will move up.

Long term, I'm concerned about their market. Not the 5500 product cycle because that isn't a static product, but EMC's bread is buttered in the mainframe market, and mainframes clearly aren't doing well. Their AS/400 product is doing well, and that's a much more competitive market.

I think Iceberg's continuous operation is almost a moot point. There have been such quantum advances in densities and mean time between failure that you don't have to mirror everything anymore. You can mirror just the mission-critical data and have a much more inexpensive solution.

—*Derek Slater*

Exch	52-Week Range			Sept.17 3pm	Wk Net Change	Wk Pct Change
Communications and Network Services						
OTC	40.00	13.50	3COM Corp	27.25	2.25	9.0
NYS	91.13	63.38	American Info Techs Corp (H)	80.63	0.88	1.0
NYS	65.00	40.63	AT&T	59.38	-1.38	-2.3
OTC	4.06	0.75	Artel Communication Corp	3.31	0.19	6.0
OTC	24.50	12.50	Banyan Systems Inc	18.50	-0.50	2.6
NYS	64.88	44.50	Bell Atlantic Corp (H)	64.38	0.25	0.4
NYS	62.63	46.75	BellSouth Corp (H)	61.61	0.50	0.8
NYS	14.75	3.63	Bolt, Beranek & Newman	10.50	-0.75	-6.7
OTC	18.50	9.50	Brooktrout Technology	12.00	-0.25	-2.0
NYS	119.00	56.63	Cabletron Systems	102.88	-0.88	-0.8
OTC	35.00	6.63	Centigram Communications	30.73	0.50	-1.6
OTC	35.50	20.25	Chipcom Corp	50.00	3.50	7.5
OTC	59.23	14.00	Cisco Systems Inc	46.75	0.50	1.1
OTC	16.38	5.50	Compression Labs Inc	13.73	-0.15	-1.0
OTC	30.00	17.00	CrossComm	27.50	1.50	5.8
OTC	4.63	1.63	Data Switch Corp	2.50	-0.13	-4.8
NYS	19.86	12.38	Digital Comm Assoc	13.63	0.00	0.0
OTC	12.75	3.75	Digital Systems Int'l Inc	4.00	-0.23	5.9
OTC	67.88	9.38	DSC Communications	59.50	1.88	-3.1
OTC	9.50	4.75	Fibronix Int'l Inc.	6.50	-0.38	-5.5
OTC	24.00	8.75	FileNet Corp	33.00	-1.00	-7.1
OTC	4.38	1.50	Gandalf Technologies Inc	2.31	0.19	7.3
OTC	2.06	0.75	Gateway Communications	0.88	-0.06	-6.7
NYS	15.75	3.25	General Datacomm Inds.	12.13	1.63	15.5
ASE	3.75	2.00	Go Video	2.44	-0.13	-4.9
NYS	38.00	32.38	GTE Corp	38.00	1.00	1.7
NYS	94.75	67.75	ITT Corp	92.63	-0.88	-0.9
OTC	29.88	16.81	MCI Communications Corp	28.38	0.50	1.8
OTC	6.50	1.50	Microcom Inc.	3.00	0.63	26.3
OTC	24.25	3.50	Netrix Corp	4.75	-0.25	-3.0
OTC	19.00	6.75	Network Computing Devices (L)	7.00	-0.50	-6.7
NYS	15.00	5.38	Network Equipment Tech	8.00	-0.88	-9.9
OTC	20.13	8.00	Network General	11.15	-0.13	-1.0
OTC	15.75	6.88	Network Systems Corp	7.25	-0.23	-3.1
OTC	73.88	8.94	Newbridge Networks Corp	64.00	1.88	-4.3
NYS	46.00	11.38	Northern Telecom Ltd.	25.50	-1.00	-2.3
OTC	35.23	17.63	Novell Inc.	19.13	-0.63	-3.2
NYS	48.73	39.50	Nynex Corp (L)	48.75	1.06	2.2
OTC	30.00	14.50	Octel Communications Corp	21.00	0.50	2.4
OTC	6.13	3.38	Penril DataComm Networks	4.38	0.13	2.9
OTC	30.50	12.50	PictureTel Corp	17.50	-0.23	-1.4
OTC	11.50	3.63	Proteon Inc.	3.00	0.15	5.3
NYS	17.88	17.00	Scientific Atlanta Inc	35.63	1.50	-6.0
NYS	67.00	31.73	Southwestern Bell Corp (H)	48.00	1.00	-4.3
NYS	37.38	22.15	Sprint Corp (H)	35.75	-0.63	1.7
OTC	17.00	12.50	Standard Microsystems Corp	21.50	1.65	13.9
OTC	18.50	9.23	Stratacom Inc	13.00	0.25	2.0
OTC	42.75	11.84	SynOptics Communications	23.50	0.75	3.0
OTC	6.63	1.88	Telebit Corp	3.13	0.38	7.9
OTC	15.00	2.38	Telematics Int'l Inc.	15.00	1.50	11.1
OTC	32.75	15.15	US Robotics (H)	28.75	1.00	-3.4
NYS	48.13	35.75	US West Inc.	48.13	1.38	2.9
OTC	56.00	19.50	Wellfleet Communications	46.00	1.00	2.2
OTC	19.50	7.25	Xircom	17.00	-1.25	-6.8
PCs and Workstations						
OTC	5.56	2.50	Advanced Logic Research	2.88	-0.13	4.2
OTC	83.25	14.00	Apple Computer Inc. (L)	25.50	-0.50	-1.9
OTC	26.25	12.75	AST Research Inc.	13.50	0.00	0.0
NYS	9.25	2.50	Commodore Int'l	3.25	-0.38	10.3
NYS	61.75	31.00	Compaq Computer Corp	57.50	-0.13	-0.2
OTC	49.88	13.50	Dell Computer Corp	17.23	-0.50	-1.8
NYS	80.25	50.23	Hewlett Packard Co.	67.88	-1.50	-3.6
NYS	41.00	17.63	Silicon Graphics	38.63	-0.50	-1.3
OTC	41.00	24.00	Sun Microsystems Inc.	25.63	-2.25	-8.1
NYS	36.38	24.63	Tandy Corp (H)	35.88	-0.38	-1.0
OTC	7.00	1.88	Zeos International Ltd.	3.19	0.00	2.0
Large Systems						
ASE	9.63	4.50	Amdahl Corp. (L)	5.50	0.56	11.4
NYS	8.75	3.63	Convex Computer	4.63	0.13	1.8
OTC	6.13	2.25	Cray Computer	4.25	1.00	30.8
NYS	30.88	19.00	Cray Research Inc	23.38	0.63	2.7
NYS	13.88	7.75	Data General Corp	8.63	-0.38	-4.2
NYS	49.25	30.38	Digital Equipment Corp	38.50	4.13	-9.9
NYS	44.00	28.75	Harris Corp	40.63	0.25	0.6
NYS	64.63	40.63	IBM	43.00	-0.63	-1.4
OTC	25.75	5.50	Kendall Square Research	20.75	-2.50	-10.8
NYS	141.50	83.00	Matsushita Electronics	136.00	1.25	1.6
OTC	23.75	8.25	NetFrame	16.50	3.50	26.9
OTC	23.50	8.25	Parallan Computer	19.50	1.00	5.4
OTC	13.75	6.00	Pyramid Technology	20.88	-0.38	-1.8
OTC	14.00	11.25	Sequent Computer Sys.	15.00	-0.15	-1.6
OTC	8.38	1.38	Sequoia Systems Inc.	1.38	-0.13	-9.0
NYS	46.75	20.25	Stratus Computer Inc	24.00	0.38	1.6
NYS	16.88	8.50	Tandem Computers Inc	9.75	-0.50	-4.9
OTC	13.50	10.63	TriCord Systems	19.25	1.25	6.9
NYS	13.88	7.75	Unisys Corp	11.50	0.00	0.0
Software						
OTC	37.00	12.63	Adobe Systems Inc.	16.75	2.50	13.0
OTC	20.75	10.25	Aldus Corp.	18.75	-0.25	-1.3
OTC	11.25	3.50	American Software Inc	7.38	0.38	5.4
OTC	18.13	9.50	Ask Computer Systems	11.00	-0.88	-7.4
OTC	56.25	38.75	Autodesk Inc.	48.25	1.00	1.1
OTC	8.50	2.50	Bachman Info. Systems	3.38	-0.25	-6.9
OTC	43.00	26.50	BGS Systems Inc	26.50	-3.50	11.7
OTC	84.13	38.75	BMC Software Inc.	54.75	-1.88	3.3
OTC	28.25	18.00	Boole & Babbage	24.00	0.50	2.1
OTC	42.00	13.88	Borland Int'l Inc. (L)	13.88	-0.88	-5.9
OTC	5.00	2.75	CE Software	2.88	0.00	0.0
ASE	40.25	11.16	Cheyenne Software Inc.	31.25	-4.23	12.0
OTC	19.50	8.25	ChipSoft	15.00	-0.15	-1.6
OTC	8.88	5.63	Cognos Inc	7.63	-0.50	-6.2
NYS	32.25	14.50	Computer Associates	30.13	-0.50	-1.6
NYS	10.88	2.73	Computervision Corp	3.13	-0.13	-3.8
OTC	34.25	19.15	Compuware Corp.	24.25	0.75	-3.0
OTC	14.75	5.75	Comshare Inc.	9.13	-0.88	-8.6
OTC	30.38	10.73	Corel Corp	10.38	1.38	4.7
OTC	15.25	5.00	Easel Corp	6.50	0.00	0.0
OTC	15.25	11.00	4th Dimension	11.75	1.00	4.8
OTC	19.25	5.25	Frame Technology	7.63	-0.13	-1.6
OTC	17.50	8.00	Group 1 Software	8.00	-1.00	-11.1
OTC	35.23	14.50	Gupta	15.23	0.00	0.0
OTC	10.15	4.50	Hogan Systems Inc	10.23	1.00	10.6
OTC	23.75	11.23	IMRS	18.00	1.38	8.3
OTC	44.75	14.75	Information Resources (H)	41.50	0.25	0.6
OTC	27.25	9.63	Informix Corp	18.75	-1.50	-7.4
OTC	14.25	8.50	Intergraph Corp	10.63	-0.50	-4.5
OTC	13.63	8.00	Interleaf Inc.	6.50	-0.38	-5.5
OTC	17.75	4.75	Intersolv Inc.	8.13	-0.50	-5.8
OTC	16.00	7.75	KnowledgeWare Inc	10.13	-0.13	-1.1
OTC	54.75	13.50	Legent Corp	19.13	0.00	0.0
OTC	40.13	14.75	Lotus Development	38.23	1.50	6.1
OTC	23.00	4.15	MathSoft (L)	5.15	0.63	13.5
OTC	23.25	4.50	McAfee Associates	8.25	-0.13	-1.3
OTC	11.63	2.50	Meca Software	4.88	0.13	2.6
OTC	12.00	3.23	Mentor Graphics	9.63	-0.13	-1.3
OTC	46.00	26.25	Micro Focus	26.50	-2.50	-8.6
OTC	13.23	4.38	Micrografx Inc.	6.75	0.50	8.0
OTC	98.00	70.38	Microsoft Corp.	76.50	1.38	1.8
OTC	56.88	18.25	Oracle Corp.	52.63	1.50	1.9
OTC	40.00	21.50	Parametric Technology	26.75	-1.00	-2.6
OTC	40.50	12.50	PeopleSoft	32.25	-0.25	-0.8
OTC	7.13	3.75	Phoenix Technologies	4.19	-0.13	-2.9
OTC	40.00	12.00	PowerSoft	27.75	0.00	0.0
OTC	30.25	11.34	Platinum Software (H)	30.00	1.75	6.2
OTC	25.00	40.75	Platinum Technology	11.13	-0.88	-7.3
OTC	61.50	32.25	Progress Software Corp.	46.63	-3.63	-2.2
OTC	7.38	2.50	Quarterdeck Office Sys.	2.81	0.06	2.3
OTC	32.06	15.75	Rainbow Technologies Inc.	26.13	-1.38	-5.0
OTC	11.38	4.00	Rasterops	10.15	0.38	3.8
OTC	15.25	3.63	Ross Systems	11.00	0.25	2.3
OTC	28.75	9.63	Sapiens Intl. Corp N.V. (H)	27.63	0.38	1.4
OTC	14.50	5.50	Software Publishing Corp	6.50	-0.50	-7.1
OTC	14.23	2.63	Software Toolworks Inc	13.25	-0.50	-3.6
OTC	1.25	0.75	Spinnaker Software	1.50	0.00	0.0
OTC	13.75	3.25	State of the Art	10.50	-2.25	-17.6
NYS	24.63	15.00	Sterling Software Inc.	22.00	-0.63	-2.8
OTC	21.63	8.00	Struct. Dynamics Research	14.88	1.00	7.3
OTC	77.50	31.75	Sybase Inc.	55.50	-1.25	3.1
OTC	18.63	3.88	Symantec Corp.	18.13	1.13	9.6
OTC	25.50	10.00	System Software Assoc.	14.63	-0.88	-5.6
OTC	6.38	2.75	Trinzic Corp.	4.00	0.00	0.0
OTC	34.25	11.25	ViewLogic Systems	11.13	-1.13	-5.1
OTC	23.50	5.50	Walker Interactive Systems	6.75	0.13	1.9
OTC	3.19	1.00	Wordstar	1.19	0.06	5.6
Semiconductors						
NYS	32.88	10.63	Advanced Micro Devices	29.38	0.88	3.1
NYS	26.88	9.75	Analog Devices Inc. (H)	75.00	-1.30	-5.7
OTC	35.00	10.50	Atmel Corp.	34.23	1.88	5.8
OTC	6.75	2.75	Chips and Technologies	4.88	-0.63	-11.4
OTC	39.25	13.00	Cirrus Logic	27.13	0.50	1.9
NYS	16.75	7.88	Cypress Semiconductor Corp	13.50	-1.50	10.7
NYS	19.00	10.38	Dallas Semiconductor	16.88	-0.50	-2.9
OTC	67.15	30.38	Intel Corp	64.75	1.25	-1.9
NYS	19.25	5.38	LSI Logic Corp	17.50	-0.25	-1.4
OTC	15.25	11.66	Lattice Semiconductor	13.25	-0.75	-3.1
NYS	58.25	14.38	Micron Technology (H)	58.25	1.38	2.4
NYS	99.13	41.38	Motorola Inc.	91.13	-1.63	-1.7
NYS	20.88	10.13	National Semiconductor (H)	19.88	-0.63	-3.0
OTC	15.75	6.50	Sierra Semiconductor	7.15	-0.25	-3.1
OTC	51.25	25.50	SynOpsys	46.13	-3.63	-7.3
NYS	84.25	39.00	Texas Instruments	76.13	1.63	-3.5
OTC	17.38	6.50	VLSI Technology (H)	17.13	0.38	2.2
OTC	13.25	2.63	Weitek	12.75	0.00	0.0
ASE	9.63	3.63	Western Digital Corp	4.88	-0.13	-2.3
OTC	46.25	14.50	Xilinx	44.25	-0.25	-0.6
OTC	33.25	10.00	Zilog Inc. (H)	32.50	1.25	4.0
Peripherals and Subsystems						
OTC	48.00	15.75	American Power Conversion	38.73	-3.00	-7.2
OTC	20.16	15.50	Banctec Inc.	19.25	0.50	2.7
OTC	18.00	3.50	Cambex Corp.	4.00	0.00	0.0
ASE	18.38	3.88	Cognitronics Corp.	4.38	-0.50	-10.3
NYS	13.50	8.00	Conner Peripherals	10.00	-0.38	-3.6
OTC	38.50	14.00	Creative Technologies Inc.	19.13	-0.13	-0.6
OTC	30.75	11.00	Data Race Inc.	11.75	-0.50	-3.8
ASE	13.25	4.75	Dataram Corp	8.63	-0.50	-5.5
NYS	35.00	6.00	EMC Corp	33.63	3.63	5.1
OTC	18.50	3.25	Emulex Corp. (L)	6.25	0.50	8.7
OTC	19.00	13.15	Evans & Sutherland	16.75	-0.50	-2.9
OTC	24.25	7.50	Exabyte	9.38	-0.25	-2.6
OTC	34.00	9.13	Intelligent Info. Systems	26.00	-6.23	-19.4
OTC	8.88	3.00	Iomega Corp (L)	3.00	-0.38	-11.1
OTC	15.23	5.75	IPL Systems Inc	7.25	-0.73	9.4
OTC	24.00	14.25	Komag Inc	16.75	2.00	-11.0
OTC	19.63	4.38	Maxtor Corp	5.88	0.00	0.0
OTC	10.38	5.75	Micropolis Corp	6.15	-0.50	-7.4
NYS	117.00	97.00	3M Corp	107.75	1.38	1.3
OTC	7.75	4.00	Printronix Inc	7.13	0.13	1.8
NYS	17.25	6.88	QMS Inc.	7.88	-0.63	-7.4
OTC	17.88	9.50	Quantum Corp	11.38	-1.00	-8.1
OTC	7.11	3.13	Radius Inc	4.63	-0.25	5.1
NYS	16.88	9.13	Recognition Equipment	15.63	-0.25	-1.6
OTC	13.88	3.73	Rexon Inc.	4.25	0.00	0.0
OTC	22.38	12.00	Seagate Technology	17.63	-1.63	-8.4
NYS	45.00	18.00	Storage Technology	27.50	-2.63	-8.7
NYS	27.88	12.63	Tektronix Inc	14.13	0.13	0.5
NYS	86.88	70.15	Xerox Corp	71.75	-1.13	-1.3
Services						
OTC*	23.75*	14.88*	American Mgmt. Systems	16.13	1.25	7.2
NYS	6.75	2.38	Anacomp Inc	2.88	0.00	0.0
OTC	33.75	17.75	Analysts Int'l	32.75	0.00	0.0
NYS	38.13	44.63	Auto Data Processing	49.13	0.25	0.5
NYS	17.50	13.00	Ceridian Corp (H)	17.38	1.11	6.9
NYS	17.38	13.13	Comdisco Inc	16.13	1.38	9.3
OTC	11.00	4.50	Computer Horizons	11.00	0.50	4.8
NYS	92.38	65.88	Computer Sciences (H)	90.00	-2.25	-2.4
NYS	9.25	6.00	Computer Task Group	7.00	0.25	3.7
NYS	40.50	19.00	CompUSA Inc	30.75	-1.15	3.5
OTC	14.25	7.00	Corporate Software	11.25	0.25	2.3
OTC	12.75	6.63	Egghead Discount Software	7.13	-0.13	-1.7
NYS	25.88	26.00	General Motors E (EDS)	31.00	0.73	2.4
OTC	25.50	10.50	Inacom Corp	17.63	-1.13	-6.0
OTC	19.50	8.13	Intelligent Electronics (H)	19.50	0.88	4.7
OTC	15.13	7.13	Merisel	13.88	-0.50	-3.5
OTC	24.50	5.75	Microage Inc.	21.50	-1.50	6.5
OTC	33.00	19.00	Paychex	32.00	0.75	2.4
NYS	87.25	21.63	Policy Management Sys.	23.13	-0.13	-0.5
NYS	43.63	10.75	Reynolds and Reynolds	38.38	1.50	-3.8
OTC	19.00	13.00	SEI Corp	18.00	0.00	0.0
OTC	14.38	17.50	Shared Medical Systems	21.88	-0.15	-1.1
OTC	11.63	5.75	SHL Systemhouse	9.75	0.00	0.0
OTC	30.75	20.00	Software Spectrum Inc	25.25	-1.00	-3.8
OTC	40.25	13.75	SunGard Data Systems (H)	39.75	-1.00	2.5
NYS	4.38	1.13	Ultimate Corp.	2.75	-0.13	-4.5

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Briefs

Televideo posts loss

For its third fiscal quarter ended July 30, Televideo Systems, Inc. has recorded a net loss of $431,000, or 1 cent per share, on net sales of $3.4 million. This compares with a loss of $94,000, or less than 1 cent per share, on net sales of $4.7 million for the similar period a year ago. The company blamed this on its exit from the computer systems business.

Investors sue Apple

Apple Computer, Inc. picked up another shareholder suit last week — its sixth since July — charging company officials with taking advantage of insider information to sell stock before the price dropped significantly in July.

Micropolis cuts force

Micropolis Corp. last week cut about 14% — 205 workers — from its work force and said it expects to further reduce its manufacturing staff. Due to a combination of costs associated with the cuts and lower-than-expected sales, the company expects to post a larger net loss for the quarter ending Sept. 24 than it had previously anticipated. It blamed "overcapacity conditions" and an "intensely competitive" marketplace.

Sun Data parts sold

SunGard Recovery Services, Inc. acquired the disaster recovery business of Sun Data, Inc. Separately, Sun Data said it sold a 90% stake in the company to Eric Prockow, formerly chief financial officer and vice president of operations. He was named chairman and chief executive officer. Details of the transactions were not disclosed.

Stratus buys firm

Stratus Computer, Inc. signed an agreement to buy Shared Financial Systems, Inc., a Dallas vendor of financial, retail and health care applications, for $15 million.

Export guides hinder U.S. encryption trade

U.S. software vendors say federal export controls giving foreign market leg up

By James Daly
WASHINGTON, D.C.

U.S. software companies building data encryption packages are losing an estimated millions of dollars each year because of strict and outdated federal export control guidelines, according to a recent study by the Software Publishers Association (SPA) in Washington, D.C.

"We are going to be closed out of the [foreign] market and lose sales of noncontrolled software and maybe even hardware and services because we can't provide the total package the customer wants," said Lee Mercer, corporate export manager at Digital Equipment Corp.

At the root of the problem is a type of package that uses mathematical formulas or algorithms — sometimes called keys — to scramble data, making it hard for unauthorized recipients to read. The federal government puts strict control on the export of such packages, fearing they may prevent U.S. security agencies from intercepting foreign communications.

Vendor insecurity

Vendors say federal regulations have inhibited them from putting security features into their products. They fear being prevented from exporting the features or not affecting the laborious export approval process. The feds allow a watered-down version of DES to be exported, but many manufacturers cannot support two versions of their encryption packages. And many foreign customers demand to have their products protected by the use of DES or its equivalent.

Brisk overseas business

But the SPA's study found that such encryption packages are flourishing overseas. Earlier this month, in testimony before the National Institute of Standards and Technology's Computer Systems Security and Privacy Advisory Board, the SPA's Douglas Miller said at least 215 foreign hardware and software products from manufacturers in at least 20 foreign countries now encrypt text, files and data. He added that 84 of those products use the Data Encryption Standard (DES), an algorithm used by the federal government that is believed to be unbreakable.

Miller also identified 33 foreign encryption software kits that employ DES. The kits are installed by inserting a floppy disk, thus allowing DES capabilities to be programmed into various applications. In contrast, he identified 283 encryption products from U.S. firms, 148 of which employ DES.

While DES or DES-strength encryption is legal in the U.S., federal regulations prohibit its commercial export in most circumstances. But DES software is available worldwide via Internet, said the SPA's general counsel Ilene Rosenthal. "Current export regulations are not effective in preventing the export of DES encryption technology," she said.

It's a no-win situation for U.S. software makers, according to the SPA. "Export restrictions simply prevent U.S. companies from generating foreign revenue and creating new jobs," said SPA executive director Ken Wasch.

Senior correspondent Gary H. Anthes contributed to this report.

Pace picks up in tech mergers; client/server hot

By Derek Slater
FORTLEE, N.J.

Information technology companies continued to partner up at record rates in the first half of the year, according to a Broadview Associates study, which revealed a 30% rise in merger and acquisition activity.

A total of 296 deals, worth $12.6 billion, were completed, compared with 227 transactions totaling $9 billion in the comparable period in 1992.

Peter Stoneberg, managing director at Broadview Associates, said the largest number of deals were in the services and software sector. Client/server software companies were hot targets, as were PC application software developers.

Telecommunications deals, while less numerous than software transactions, were more capital-intensive and accounted for a whopping 60% of the dollar total in the six-month period.

Among the pacesetters was networking giant Novell, Inc., which snapped up four acquisitions in six months, engulfing Unix System Laboratories, Inc., video-on-NetWare start-up Fluent, Inc. and development tool vendors Serius Corp. and Software Transformation, Inc.

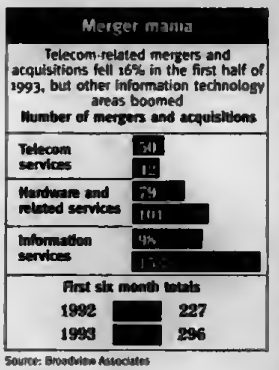
OpenVision Technologies, Inc., a well-heeled distributed systems management start-up, also bought four entire companies during the same period, along with two divisions and Control Data Systems, Inc.'s Aria storage management product suite. One-year-old OpenVision is based in Pleasanton, Calif.

"Megadeals" worth $100 million or more included Sterling Software, Inc.'s $156 million buyout of Systems Center, Inc. and AST Research, Inc.'s purchase of Tandy Corp.'s Grid subsidiary. Most of the transactions in the half-year, however, were valued at less than $10 million.

Merger mania

Telecom-related mergers and acquisitions fell 16% in the first half of 1993, but other information technology areas boomed

Number of mergers and acquisitions



Source: Broadview Associates

No end in sight

Don't expect the dance to end soon.

For example, Sachman Information Systems, Inc. has announced it will acquire Cooperative Solutions [CW, Sept. 13]. Novell is expected to keep shopping [CW, June 14], as is Symantec Corp., which announced plans to buy Fifth Generation Systems, Inc.

Stoneberg said he also expects internetworking companies to start pairing up. "Up until now, there have been pretty distinct lines between hubs and routers, but now they are getting into each other's territory," Stoneberg said.

Broadview's report also noted that tax law changes should help fuel the fire. Goodwill that is usually booked in asset acquisitions is now tax-deductible, meaning that an acquired company can make a more positive immediate contribution to after-tax earnings. Lower capital gains taxes also contribute to a healthy mergers and acquisitions environment, according to Broadview's report.

"The biggest thing that could slow things down would be a major correction in the stock market," Stoneberg said. The high prices of technology issues have made stock a preferred currency for acquisitions, he said.

One factor driving the merger momentum is the surprising speed with which downsizing has taken root. "It's a time to market issue," Stoneberg said. "Client/server has accelerated beyond what anyone expected, and to get a market position the big firms are having to buy smaller, innovative companies" rather than develop products from scratch.

On the PC application front, Stoneberg noted that distribution channels are becoming more defined, making it difficult for smaller vendors to break in. New companies are pushing to hook up with more established players in order to gain access to precious shelf space.

Wysiwyg

It had to happen

Computer Athlete, Inc. in Dublin, Ohio, is promoting PC software that works with any exercise equipment. According to the company, the equipment is attached to a PC, creating an arcade-style game that enables a person's motions to correspond to those of a video athlete. You score points by dodging hazards and passing menacing characters.

Did you know?

They've started calling the Minneapolis/St. Paul area "the heart of the silicon tundra."

Eat my (Silicon) dust

They take their technology seriously in Silicon Valley. On the way to a user group conference recently, one of our reporters saw a shiny black BMW speeding down the highway. Its vanity plate read:

H8 ORACL

Thar she blows!

Consultants, analysts and public relations people are often characterized as being, ahem, a bit long-winded and fond of douhlespeak. Therefore, the following list of great names seems rather appropriate:

- John Boring, president of SQL Designs, a consultancy.
- Wyndi Ballard, director of public relations, Software Marketing Corp.
- Robert Puffer, analyst, Gartner Group, Inc.
- Dick Hackmeister, Hackmeister Advertising and Public Relations.

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The 5th Wave *by* Rich Tennant

Inside Lines

True Blue?

The IBM Consulting Group appears to be holding firm to its pledge to provide its customers with non-IBM equipment when required. This week the White Plains, N.Y.-based consulting firm will announce plans to conduct a client/server project for a major database vendor with non-IBM hardware.

First in line

In the next month or two, Banyan Systems and Cisco Systems should be the first major network system vendors to announce support for Simple Network Management Protocol (SNMP) Version 2.0, according to Jeff Case, who co-developed SNMP Versions 1.0 and 2.0. Such support will give users something to manage with the new SNMP Version 2.0-based platforms recently announced by Sun and Wollongong.

Potential bedfellows?

Are we close to seeing Oracle sign a joint development pact with Lotus for an expanded Notes-style groupware product [CW, Sept. 6]? Several database analysts think so. The database maker plans to announce "a major alliance" at the International Oracle User Week conference next week in Orlando, Fla., a spokeswoman acknowledged. One Wall Street analyst said the duo has been "talking for months" about a groupware collaboration. An Oracle executive acknowledged the talks but would neither confirm nor deny an impending partnership.

Manufacturing plant: Will sell or lease

Sources say IBM is getting very close to peddling off its Kingston, N.Y., manufacturing plant. The facility, which is closing as part of IBM's ongoing consolidation efforts, is in the process of being folded into Big Blue's Poughkeepsie, N.Y., operations. The Federal Aviation Administration was rumored to be interested in transferring 975 of its Jamaica, N.Y., employees to the Kingston site, but FAA officials have denied interest. The latest prospective tenant? NEC Corp.

'Sizzaed-ly'

Legend [illegible] will this week announce an alliance that [illegible] distribution [illegible] Legend will [illegible]

LAN

This [illegible]

[illegible] edge, together [illegible] each [illegible] News [illegible] 4, (800) 878-8883 [illegible] by Computerworld's 24-hour [illegible]

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As you move to client/server computing, you'll undoubtedly spend countless hours evaluating GUI tools, sorting through network solutions and resolving platform issues. But past experience will tell you that managing your data is just as important. In fact, it's key to delivering information to your users when and where they need it–and making sure it's the right information.

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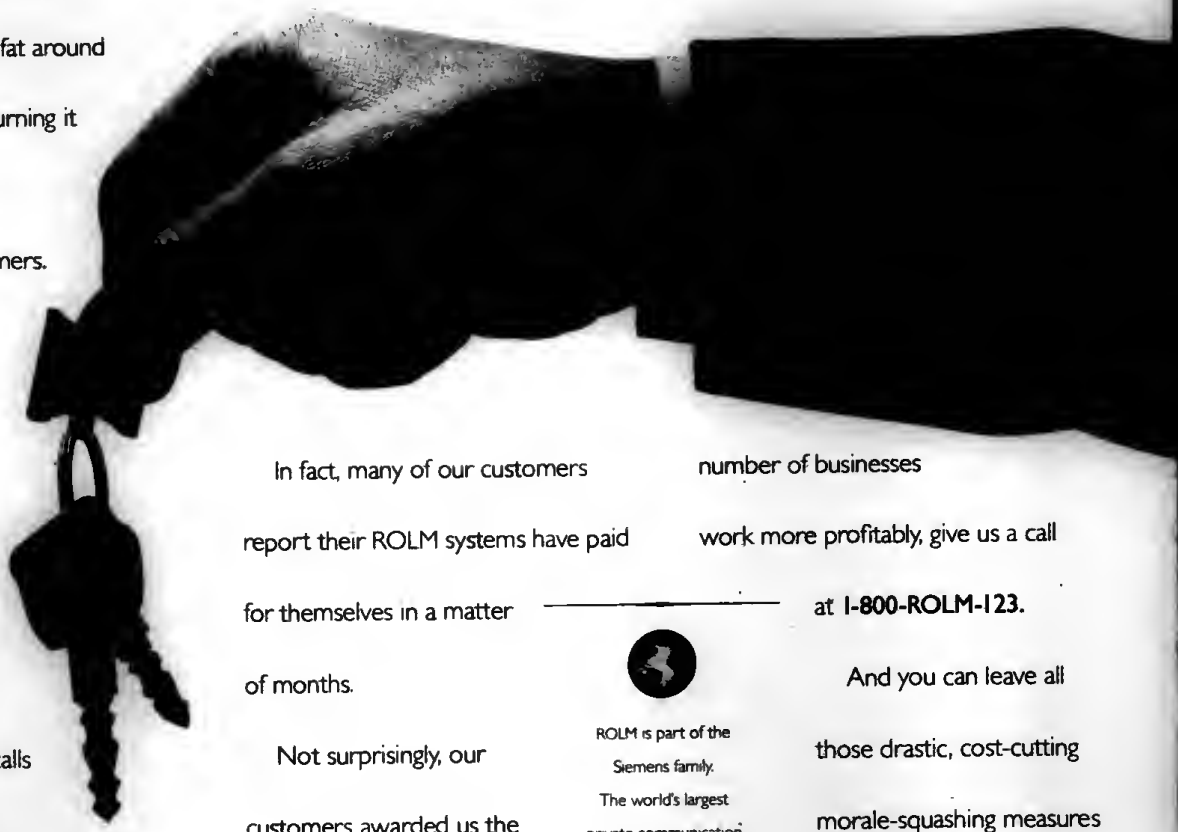

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